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BRAITHWAITE'S RETROSPECT.

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Synopsis.

An Abstract of the most Practical Articles in this Volume, with other Short Articles from the Medical Journals, showing the most important indications of Treatment published by different writers during the half-year.

Arranged Alphabetically.

GENERAL MEDICINE AND THERAPEUTICS.

Acromegaly.—Erb (*Deutsch. Arch.*, Bd. 42, Heft 4, 295) contributes an elaborate illustrated article on this very rare affection, which has been described under various names. He reports a new case of the disease with the greatest care, and gives tables of the measurements of numerous parts of the body, of the electrical reactions of various nerves, &c. He also details the subsequent history of the two cases described by Friedreich twenty years ago, and adds synopses of all the cases which have been hitherto published; in all 11, including his own. In comparing these 11 cases, we find that there have been 8 men and 3 women affected. All classes are liable to it, though it seems to attack the lower classes most especially. At any time of life, too, the disease may make its appearance. Thus, in 3 instances it was first noticed under twenty years, in 3 when between twenty and thirty, in 3 from thirty to forty, in 2 from forty to fifty. The development of the affection is slow and creeping. The initial symptoms which precede or accompany the enlargement of the extremities and the head are in most cases not very pronounced; consisting in a sense of weakness and tire, drowsiness, paræsthesia, and headache; and in some cases severe attacks of migraine, pain throughout the whole body, &c. The most striking symptom in all cases is the advancing enlargement of the extremities, particularly the colossal development of the hands and feet. The legs and forearms, especially in the region of the ankles and wrists, partake in the enlargement, as does the face, though chiefly in the lower part. The cause of the enlargement is found in an overgrowth of the bones themselves, especially in their breadth and thickness. The skin is involved to only a slight extent, and never shows any thickening, as in elephantiasis or myxœdema. Bones, other than in the extremities, are sometimes attacked—e.g., the ribs, sternum, clavicles, and not seldom the vertebral column, which becomes curved and thickened. The bones of the face are almost always

affected, particularly the lower jaw and the cheek bones. The thickening of the under lip, nose, and tongue is also almost constant. Enlargement of the ears, eyelids, larynx, and epiglottis is noted in some cases. Thickening of the femur, humerus, and scapula is rare, but the patella is almost always involved. Among inconstant symptoms may be noticed enlargement of the heart with asthmatic affections, albuminuria, thirst, weakness of the muscular system, disorders of sight, headache, diminution of intelligence, &c. Perhaps an important symptom is the affection of the thyroid, seen in 8 cases; in 6 cases it was atrophic, and in 2 hypertrophied. Finally, in 3 cases dulness in the upper sternal region probably indicated an enlarged thymus. The course of the disease is slow, though sometimes rapid at first. It may slowly lead to death through some complication of the internal organs—probably an integral part of the disease—or it may remain stationary for decades. The diagnosis is not difficult, as the disease is so well characterised. In *elephantiasis* the tissues of the skin are very much thickened and œdematous. In *myxœdema* the quality of the skin is very characteristic; turgid and swollen without being œdematous, partly pale, partly cyanotic. The face has a stupid expression, and is rounded instead of being oval, as in acromegalie; particularly is there no widespread hyperostosis. *Leontiasis ossea*, of Virchow, affects especially the bones of the skull, producing irregular bony tuberosities, and making a monstrosity out of the head. The extremities are uninvolved. In *osteitis deformans*, of Paget, the painful enlargement of the long bones is irregular, not symmetrical; and there is no enormous development of the hands and feet. Many cases of *arthritis deformans* resemble acromegalie superficially, but the latter disease has no true deformity of the joints, no tenderness, no grating, no exudate, &c. Autopsies have been made in 3 cases, the following being the most important conditions noted: Widespread hyperostosis of the bones, and a tumour of the hypophysis cerebri in all 3 cases. In 2 cases there was hyperplasia of the brain, of the sympathetic and cerebral nerves, and in part of the spinal nerves. The thyroid and the spleen were enlarged in 2 cases, and the thymus in 1 case. Erb concludes that the nature of the disorder is a hyperplasia of the most diverse tissues of the body; first of all, of the connective tissues, best seen in the bones. There is also hyperplasia of the brain and nerves, always this change of the hypophysis, certain alterations of the thyroid, and persistence and hyperplasia of the thymus. It seems clear that this widespread tissue growth must be an irritative process, and the question arises whence the irritation comes. It might be from outside—chemical or bacteriological in its nature; but this does not seem at all probable. The irritation might, on the other hand, be

from within the body, either a tropho-neurotic influence from the diseased brain, nerves, sympathetic or hypophysis; or a chemical product irritating to the tissues, and derived from some disease of the large glandular organs of the abdomen; or, finally, a sending out by the persistent and enlarged thymus of tissue elements endowed with unusually great plastic energy. Erb discusses all of these hypotheses in detail, but concludes that none of them is satisfactory, and that the etiology of the disease is still completely in the dark. As little is to be said of the therapy. Alterative drugs would seem to be indicated in the early stages, but tonic treatment will as often be called for, on account of the initial weakness and nervousness. In more advanced cases that medicine must be chosen which seems best to suit the individual case, and more than this cannot be said in the present state of our knowledge. (American Journal, May, p. 512.)

Acute Bronchocele of Adolescents.—There is a variety of bronchocele which, as far as my experience has gone, is almost peculiar to adolescents, which increases very rapidly, and is sometimes attended by urgent symptoms of tracheal compression. It is worth study as a form of constitutional disease, and the following narrative affords two good examples of it. M. P., aged 18, was brought to me by Dr. Greenwood, of Dalston, for a very large soft bronchocele which embraced the whole front of his neck and was already causing some difficulty of breathing. He did not know how long it had existed, but thought that it had been there only a few weeks. He was a tall lad, of rather dark complexion. His pulse was soft, and his hands chilly and rather dusky. He considered himself in good health, and there was no indications of Graves's disease excepting a certain degree of irritability of the heart. I inquired carefully as to family history, and was told that the disease had never occurred in the family before, and that none of his predecessors had lived in Derbyshire. A month later M. P.'s mother came with him, and. I then got a fresh fact as to the family history. She said that her eldest sister had, when about our patient's age, suffered from an exactly similar affection to that which her son now had. This sister was now 60 years of age, very thin, but in tolerably good health. When adolescent she was much out of health, and was for two years under treatment for "Derbyshire neck." The bronchocele at length entirely disappeared, and at the present time her neck is thin rather than otherwise. No other relative was known to have had bronchocele, but my patient's mother, who was a very intelligent woman, said that it was the rule with all her relatives to be delicate from the ages of 16 to 25; several had been seriously ill, and two or three had died (of phthisis?). Those who survived became stronger as years advanced. (Mr. Jonathan Hutchinson, Brit. Med. Journal, June 30, p. 1374.)

ACUTE RHEUMATISM.—*Acute Pneumonia in.*—Whenever pericarditis arises in the course of rheumatic fever, or whenever an unexplained rise of temperature, or persistence of high temperature, or acceleration of respiration occurs, make a careful examination of the physical condition of the chest, behind as well as in front. Secondly: Always protect your rheumatic patient carefully against draughts by a canopy over the bed. I have obtained a number for use in the wards in these cases and in others, such as Bright's disease and bronchitis, where surface chills are especially noxious. Lastly: Where pericarditis and pneumonia arise in the course of acute rheumatism, avoid the use of drugs such as salicylate of soda and aconite—marked cardiac depressants. In such cases one especial source of danger lies in heart failure. Use, therefore, salicin in preference to salicylic acid, or better still, quinine in full doses of from three to five grains every four hours. With this citrate of potash may be combined, with the addition of citric acid for the solution of the quinine. (Dr. Cheadle, p. 198.)

ANTIPYRIN.—Dr. Tyrrell Brooks, Lichfield, Lecturer on Clinical Medicine in the University of Oxford, appends the following conclusions to a paper, entitled "Notes on Antipyrin." I would venture to think that in antipyrin we have a drug which, though suffering from a temporary over-popularity, is likely to be of use in practice. Its power of relieving migraine and other forms of cephalagia is, in many cases, magical. As an anodyne it is particularly useful in those cases where morphine is contra-indicated, especially in advanced kidney disease, acute gout, or in bronchitis of old people. I do not think that antipyrin is at all likely to displace morphine, as this drug possesses the advantage of being much more powerful bulk for bulk, and hence is more convenient for hypodermic medication. But a trial of it should be made where morphine cannot be given, or where morphine must be withheld for fear of establishing the morphine habit. In cases of long continued pain in which some anodyne must be given for a period often stretching over years, antipyrin may be found useful as an occasional substitute for morphine when the patient has become habituated to the morphine, and when it otherwise would be necessary to increase the dose of this drug. I regret I have not met with a case in which I could try this, but such cases as locomotor ataxy, or cases of slow paralysis accompanied by spasm of the muscles, would be suitable ones in which to make a trial. I do not think antipyrin will displace the alkaline salicylates in the treatment of acute rheumatism, but it is undoubtedly useful where the salicylates have failed, or where they are contra-indicated by the disagreeable effects they occasionally produce. With regard to the objection raised against antipyrin that it not infrequently gives rise to symptoms of poisoning, I

believe that such is of little value. I have given the drug in a large number of cases without meeting with any bad effects from it, and few of those who have used this drug most largely lay any stress upon this difficulty. One must be prepared to meet with cases of idiosyncrasy in the administration of this drug as one has to be with cocaine, morphine, quinine, and other drugs. By far the most serious objection to its extended use, particularly in hospital practice, is expense. At present, its manufacture is in the hands of monopolists, and though the French chemists say they have ascertained its composition and method of preparation, no one at present has sent on the market any of the drug under its proper chemical name, which is dimethyl-oxiquinisin, a name which requires some reflection before being added to a prescription. I have tried antifebrin as a substitute for this drug in several cases of migraine, and though the effect does not seem so certain as when antipyrin is used, yet in many cases it has acted well. The relative expense of antifebrin is much less than that of antipyrin. (Brit. Med. Journal, May 19, p. 1054.)

Antipyrin.—Hypodermic Value of.—Recently, the hypodermic use of antipyrin has been attracting considerable attention in the profession in Europe. Dr. R. Hirsch, says the *Med. Chir. Rundschan* of Dec., 1887, writes of the wonderful success with which he has treated nervous articular and muscular pains with antipyrin injections; also in one case of gastric crises and one of bronchial asthma. In all these cases relief followed the first injection, and, after the second injection, the pain disappeared entirely. The formula which Dr. Hirsch used was composed of equal parts of antipyrin and water, and of this solution he injected from a quarter to the entire contents of a Pravaz hypodermic syringe into the subcutaneous tissue near the painful parts. The syringe should always be thoroughly cleaned and disinfected with a five per cent. solution of carbolic acid. The drug was used hypodermically with great success in a case of severe neuralgia of trigeminus, and in one of articular rheumatism. Dr. Veninger has also used antipyrin in this way with astonishingly good results. He especially refers to a case of severe chronic lumbago, which was immediately relieved by the drug. In no case were the injections followed by any disagreeable symptoms. (Edinburgh Med. Journal, May, p. 1047.)

Brass Workers' Ague.—The following are the symptoms of this so-called ague: after working a few hours, a man becomes languid, depressed, and feels very cold. He is very pale and almost in a state of collapse, his face is covered with a cold perspiration, he shivers, his teeth chatter, and he is restless and anxious. His head aches, there is much nausea and complaint of muscular pains. As a rule he goes or is led home, where he

drinks freely of milk and goes to bed. The symptoms continue until he has vomited, either as the result of taking an emetic or independently of it. Vomiting is usually followed by sleep or recovery, with more or less of debility and lassitude on waking. Drs. Greenhow and Hogben speak of a more or less marked hot stage following the cold, and following the hot stage they mention profuse sweating. The hot stage may be absent, but the sweating, according to these writers, invariably occurs. My own observations, based on inquiry amongst those who have suffered from this ague, have never elicited a statement of these hot and sweating stages. Even direct questions as to their occurrence have always been met with positive negation, though some have spoken of free perspiration in the stage of collapse. How to reconcile these statements I do not know. It is only when fresh to the work that brassworkers suffer from "ague;" but, though they do not suffer from acute metallic poisoning, they do suffer from its chronic effects, and it is extremely probable that, as with arsenic and opium eaters, they may become inured to the use of the metals. It is not very common for brassworkers to use tooth-brushes, and the accumulating tartar will be found coloured green. If every effort be made to cleanse the teeth, there will yet be generally green discoloration of them. This has been proved to be due to the presence of copper. White hair is often coloured green among these workmen, and the underclothing is often stained green by the perspiration. The gums may be slightly blackened at the edges, but there is nothing distinctive as in the case of the blue line of lead poisoning; nor, indeed, beyond the green colouring of the hair and teeth, do brassworkers present any unequivocal evidence of their calling. Ague is not a disorder for which brassworkers consult a medical man; they know how to treat it themselves, and also that it is transitory in its effects; but they come to hospitals in large numbers to be treated for bronchitis. About this there is nothing special. They suffer from it in common with all workers in dusty trades; and, so far as I can learn from the secretary of the Brassworkers' Organisation, they usually die from chronic bronchitis or fibroid phthisis, unless they succumb to some acute malady. (Dr. Robert Simon, Birmingham Gen. Hosp., Brit. Med. Journal, April 28, p. 887.)

Cancerous Affections.—*Prognosis.*—Fischer, in 1881 (*Deutsch. Zeitschrift für Chirurg.*, xiv. Bd.), published the statistics of Professor Rose's cases of malignant disease operated on in the Zurich Canton Hospital and in private practice from 1867 to 1878; in all, 298 cases. Leaving out private cases, 42 in number, there were living at the time Fischer's article appeared 98 patients.

In the interest of a more thorough knowledge as to the ultimate prognosis of malignant diseases Meyer reports (*Ibid.*, xxviii.

Bd. 10, 2 Heft) the result of his investigation into the subsequent history of these cases. Of the 98 patients, definite knowledge could be obtained of 64. 22 are still living and free from recidivity. 19 died from causes not connected with their original disease; of this number, 6 perished within three years of the operation, the remaining 13 at periods varying from 4 to 16 years. Of the 22 patients still living, 11 suffered from carcinoma, 7 from sarcoma, 1 from melano-sarcoma, 1 from carcinoma-sarcomatodes, 2 from cysto sarcoma. In all these cases the diagnosis had been confirmed by microscopical examination.

Ohren (*Archiv für klinisch. Chirurg.*, xxxvii. Bd. Heft. 2) gives the statistics of 72 cases of cancer involving the face, the lips excepted; of these, 3 died shortly after the operation, 20 from recidivity, 7 are suffering from a return of the disease, 8 died from causes other than cancer, 23 still live and exhibit no sign of recidivity. Of these 23 cured cases, three years or more have elapsed since the operation in 9 only. Many of these cases exhibited advanced disease requiring ablation of extensive areas of soft parts and free chiselling of bone. Ohren confirms Thiersch's observation that "the interval between operation and recidivity becomes shorter with each succeeding operation." (American Journal, Sept., p. 302.)

Cancer of the Breast.—*Prognosis in.*—The facts deduced from the morbid changes which ensue in carcinoma of the breast, and which refer to its local extension and general dissemination, clearly demonstrate that the prognosis of the affection is eminently unfavourable. This statement becomes the more apparent from the study of the cases which pursue a natural course and of those subjected to the knife. Of 1527 cases, 137 ran a natural course, and 1390 underwent operation. Of the 137, 117 were dead. The average duration of life was 28·6 months. Of the 536 cases which perished after operation with recurrence of the disease, and in 73 of which metastases were discovered, and were suspected in 56, the average duration of life was 38·5 months; so that a comparison of the two series shows that the course of the disease is retarded by the removal of the growth; and a comparison of the two averages indicates that operation adds ten months to the life of the patient. Not only is life prolonged by operation, but the removal of the disease results in permanent recovery in 11·83 per cent. of all cases. As we have already seen, death from metastases occurs at 29·4 months, and the average date of death of those who succumb without or with operation is 33·5 months. We shall, moreover, see presently that local recurrence of the disease after three years is met with in only 2·30 per cent. of all cases. Hence a radical cure may be assumed if the patient has survived the disease over three years without local of general recurrence after the last operation, or if she has died or

some intercurrent malady under the same conditions. Of 1234 cases submitted to the knife, in which the histories could be followed, 134 were still living, and 12 had died. Of these 146, recurrent growths were removed in 16; and there was freedom from disease after the last operation for from three to fifteen years. The average time of cure was five years and nine months, and the disease had existed before operation, on an average, for 13·3 months. The cases were not selected in order that the best possible results might be obtained, since I find that of 134 in which the nature of the operation is noted, the mamma was removed and the axilla was cleared out in 83, and the breast alone was amputated in 51, although in three of these enlarged glands were left intact in the axilla, and yet the cure was assured at the end, respectively, of five years and nine months, six years and one month, and ten years and ten months. It, however, appears that the percentage of cures is greater by 5·10 when the axilla is free than when the glands are infected, and that local reproduction does not militate against a final cure, if the tumours be freely extirpated as soon as they appear. Of the 16 examples of repullulation there was one recurrence in 12, two recurrences in 3, and three recurrences in 1. In these four cases the subjects were free from disease for three years and six months, three years and seven months, five years, and twelve years after the last operation. The practical deductions which can be gathered from such data are so clear that they do not require comment. As a further pooof of the influence exerted upon the duration of life by radical operations, attention may be called to the fact that nearly 30 per cent. were free from the disease after a lapse of six years; while of the 117 patients in whom no operation was practised only 6·83 per cent. survived after that period. A review of the facts in regard to the prognosis of carcinoma, or the duration of life, as influenced by permitting the disease to pursue its course without surgical intervention, or by endeavouring to stay it by a resort to the knife, leads us to adopt the following conclusions: That when left to itself carcinoma inevitably kills, by its baneful consequences as a local disease, or by its remote multiplication. That about one in seven, or 14·24 per cent., of the patients die of the operation itself; but that the risk is not so great as to forbid interference, since it adds ten months to the life of the patient. That operations of all kinds definitely cure 11·83 per cent. of all patients, or nearly as many as they destroy. That the patient is safe from reproduction if three years have elapsed since the operation; and, that, finally, recurrence may be delayed for several months, or be prevented altogether, by clearing out the axilla at the same time that the entire breast is removed. (Dr. Samuel W. Gross, American Journal, April, p. 341.)

China Grass.—*A new Antiseptic Dressing.*—China grass is a soft, silky, very highly absorbent fibre, used in various manufactures. The combings form an elastic silken wool, which, when treated with 4 per cent. of salicylic acid, provides an excellent antiseptic absorbent surgical dressing. It is also relatively much cheaper than, so far as I know, any of the usual dressings used in surgery. I have now given it an extended trial, and, supported by the opinions of most of my medical friends, have ventured to bring it before the notice of the meeting of the Leeds and West-Riding Medico-Chirurgical Society. I am indebted to Messrs. Reynolds and Branson, of Leeds, for the admirable way in which the raw material is treated and prepared as an antiseptic dressing, of whom it may now be purchased. Its chief value is the way in which it absorbs discharges from a wound, rendering it very dry, and preventing the poulticing of the wound, as it were, when bathed in discharges underless absorbent materials. A considerable quantity is required in cases where the discharges are free, and it is perhaps well to interpose some open-meshed gauze between the dressing and the wound, so as to prevent the China grass from sticking to the wound when removed. I have also observed that under the pressure of bandaging the material still retains its absorbent qualities, and does not cake when properly teased out before use. (Mr. Bendelack Hewetson, Lancet, June 23, p. 1246.)

Chloroform Water as a Vehicle for Hypodeemic Administration of Fowler's Solution and Ergotin.—Unna, in *Manats. für Prak. Derm.*, No. 9, 1888, writes that he has found chloroform water an excellent vehicle for the hypodermatic administration of Fowler's solution and ergotin, as it prevents the decomposition of the solution. It is also useful in giving morphia where a local anæsthetic and counter-irritant effect is desired, as in neuralgias. It is equally valuable in the internal administration of drugs which decompose rapidly. Atropine and bichloride of mercury may also be given in chloroform water. (Medical News, June 23, p. 693.)

Digitalis as a Diuretic and Laxative.—Huchard, in the *Revue Gén. de Clin. et Thér.* of April 12, 1888, gives the following formula for a laxative powder containing digitalis:—Potass. sulphat., potass. tartrat., potass. nitrat., āā gr. 90; fol. digital. (pulv.) gr. 15. In twenty powders. One powder three times daily. (Medical News, June 23, p. 693.)

Diphtheria.—*Salicylic Acid.*—During the last three years Dr. Ory has found the local use of a weak solution of salicylic acid (1 in 350) very serviceable in the treatment of cases of sore throat of a diphtheritic type. He claims to have never had to do a tracheotomy in his practice, and to have helped almost all his

cases, slight or severe, to recovery. In several of these his diagnosis of diphtheria was confirmed by other physicians. He is inclined to the conclusion that the early destruction of the patches on the pharynx or tonsils may prevent a more systemic infection. He holds back the head of the patient and introduces a large brush soaked in the solution of salicylic acid, and cleanses the mouth and pharynx with a firm hand, carrying out his treatment thoroughly and without hesitation, on the ground that the diphtheritic poison is destroyed by the salicylic acid and the mucous membrane not much irritated. Such a vigorous dressing he is anxious to apply frequently, at least three times a day in serious cases. (Practitioner, Aug., p. 138.)

Diphtheria.—Mercurial Fumigations.—Dr. Corbin, of Brooklyn, has just published some remarkable experiences in the New York Medical Journal, which should have wide publicity. He reports the treatment of sixteen cases of "laryngeal diphtheria" with mecurial fumigations, and of these three died—"two of albuminuria two weeks after apparent recovery, and one from blood-poisoning" (septicæmia?). Besides these treated by himself, Dr. Corbin refers to fourteen cases treated by the same method by other physicians on his suggestion. Of the thirty cases in all, twenty-five recovered—the mortality being thus sixteen per cent., truly a remarkable result in cases of that character. The method consists in the following details: Over a child's crib barrel hoops are secured, and a flannel blanket tied, making a tent or canopy. In the case of a child eight or ten years of age, he volatilizes from forty grains to a drachm of mild chloride. He keeps the child under the canopy twenty minutes, when the blanket is removed. This is repeated every two or three hours during the first day. The fumigations are repeated as found necessary, and for several days up to and over a week from the first. "At the beginning and end of a fumigation milk punch or wine is given," and throughout strict attention to alimentation is of fundamental importance. (Medical Journal, April, p. 396.)

Enteric Fever.—*Albuminuria in.*—At the Medical Society, on April 28, 1888, Dr. Handford, of Nottingham, read a paper on Albuminuria in Enteric Fever. He gave an account of his observations in 75 successive cases that had been under his care during the past three years in the Nottingham General Hospital. There were 10 deaths, 7 of them due to perforation, giving a mortality of 13·3 per cent. In 8 cases a post-mortem examination was made, followed by a microscopical examination of the viscera. The account of the lesions in the kidney was based on these, and on two or three other cases not included in the series. Murchison gave 549 cases by ten ob-

servers where albuminuria was found in 157, or 28·6 per cent. In the 75 cases observed by Dr. Handford the urine was examined by himself in every case (save one not included in the tables) several times, and in most daily during the severity of the disease. Albumen was present in 42 and absent in 32—that is to say, it was found in 56 per cent. of the cases. Of the 42 cases with albuminuria, 9 died, giving a rate of 21·4 per cent. Among the 32 without albumen there were no deaths. Among the 42 cases there were 3 children, and in the 32 there were 14, showing that there was a much less liability in children to the albuminuria of enteric fever. The cases of albuminuria were classified under three heads: 1. Those with pre-existing definite kidney disease: these cases seemed very rare. 2. Where there was abundant and persistent albuminuria, often to the extent of ·05 up to ·1 per cent. Among these the mortality was very high. The most marked change in the kidney in such cases was found to be interstitial or diffuse nephritis, with glomerulitis and hemorrhage. The nephritis was probably of septic origin, like so many other complications of enteric fever. 3. Where the albumen only existed as a trace, and that only for a short time. Among them the mortality was much less. The renal changes were less definite, and sometimes scarcely any alteration could be detected. The chief alterations appeared to be vascular engorgement, with capillary hemorrhage, slight cellular infiltration and multiplication of nuclei, and cloudy swelling of the epithelium. Marked parenchymatous nephritis, with fatty degeneration of the epithelieum, was not found, though some degenerative changes were generally present, but difficult to distinguish from alterations which occurred so rapidly post mortem, especially in death from peritonitis due to perforation. Numerous drawings of microscopic preparations were shown. (Lancet, April 28, p. 826.)

Essential Œdema.—Wagner designates by the term essential œdema those rare cases in which it is impossible, by either clinical or pathologico-anatomical investigations, to find out the cause. This œdema, whether primary or idiopathic, is more frequently observed in children than in adults. Most frequently, also it occupies the entire surface of the body. The study of the cases which the author has reported has given him little light in regard to the etiology of the disease. In most of the cases it is apparent that there are many causes for the morbid phenomena, among the most frequent of which are changes in the blood, cardiac asthenia, vascular modifications, and probably cutaneous changes. In several cases which occurred among children, heredity seemed to play an important part in the genesis of the disease, in some cases a father having been rhachitic, in others one of the parents, or a brother or sister,

being the subject of general œdema. Neither autopsies nor experiments upon animals have served to explain to the author the genesis of the disease. It is doubtful whether the vasomotor or trophic nerves have any part whatever in the process. We are equally in the dark in regard to the generalised œdema which sometimes accompanies the febrile affections, though it is possible that the elastic tissue, the pathologico-anatomical modifications of which are very little known, may have something to do with the production of the phenomenon. (N. Y. Med. Journal, Sept. 15, p. 306.)

Myxœdema.—At the Clinical Society, on May 25, 1888, Dr. Ord, Chairman of the Myxœdema Committee, read the following conclusions. He admitted that the time taken up in the investigation was protracted, but he claimed that when the results were known the time would not appear out of proportion. 1. That myxœdema is a well-defined disease. 2. That the disease affects women much more frequently than men, and that the subjects are for the most part of middle age. 3. That clinical and pathological observations respectively indicate, in a decisive way, that the one condition common to all cases is destructive change of the thyroid gland. 4. That the most common form of destructive change of the thyroid gland consists in the substitution of a delicate fibrous tissue for the proper glandular structure. 5. That interstitial development of fibrous tissue is also observed very frequently in the skin, and with much less frequency in the viscera, the appearances presented by this tissue being suggestive of an irritative or inflammatory process. 6. That pathological observation, while showing cause for the changes in the skin during life, for the falling off of the hair and the loss of the teeth, and for the increased bulk of the body, as due to the excess of subcutaneous fat, affords no explanation of the affections of speech, movement, sensation, consciousness, and intellect, which form a large part of the symptoms of the disease. 7. That chemical examination of the comparatively few available cases fails to show the general existence of an excess of mucin in the tissues adequately corresponding to the amount recorded in the first observations, but that this discrepancy may be in part attributed to the fact that tumefaction of the integuments, although generally characteristic of myxœdema, varies considerably throughout the course of the disease, and often disappears shortly before death. 8. That in experiments made upon animals, particularly on monkeys, symptoms resembling in a very close and remarkable way those of myxœdema have followed complete removal of the thyroid gland, performed under antiseptic precautions, and with, as far as could be ascertained, no injury to the adjacent nerves or to the trachea. 9. That in such experimental cases a large excess of

mucin has been found to be present in the skin, fibrous tissues, blood, and salivary glands; in particular, the parotid gland, normally containing no mucin, has presented that substance in quantities corresponding to what would be ordinarily found in the submaxillary gland. 10. That the full analysis of the results of the removal of the thyroid gland in man demonstrates in an important proportion of the cases the fact of the subsequent development of symptoms exactly corresponding with those of myxœdema. 11. That in no inconsiderable number of cases the operation has not been followed by such symptoms, the apparent immunity being in many cases probably due to the presence and subsequent development of accessory thyroid glands, or accidentally incomplete removal, or to insufficiently long observation of the patients after operation. 12. That, whereas injury to the trachea, atrophy of the trachea, injury of the recurrent laryngeal nerves, injury of the cervical, sympathetic, and endemic influences have been, by various observers, supposed to be the true causes of experimental or of operative myxœdema (cachexia strumipriva), there is, in the first place, no evidence to show that, of the numerous and various surgical operations performed on the neck and throat, involving various organs and tissues, none, save those in which the thyroid gland has been removed, have been followed by the symptoms under consideration; that in many of the operations on men, and in most, if not all, of the experimental operations made by Prof. Horsley on monkeys and other animals, the procedure avoided all injury of surrounding parts, and was perfectly aseptic; that myxœdema has followed removal of the thyroid gland in persons neither living in, nor having lived in, localities the seat of endemic cretinism; that, therefore, the positive evidence on this point outweighs vastly the negative, and that it appears strongly proved that myxœdema is frequently produced by the removal, as well as by the pathological destruction, of the thyroid gland. 13. That whereas, according to Clause 2, in myxœdema women are much more numerously affected than men, in the operative form of myxœdema no important difference of the same kind is observed. 14. That a general review of symptoms and pathology leads to the belief that the disease described under the name of myxœdema, as observed in adults, is practically the same disease as that named sporadic cretinism when affecting children; that myxœdema is probably identical with cachexia strumipriva; and that a very close affinity exists between myxœdema and endemic cretinism. 15. That, while these several conditions appear, in the main, to depend on, or to be associated with, destruction or loss of the function of the thyroid gland, the ultimate cause of such destruction or loss is at present not evident. (Lancet, June 2, p. 1078.)

Oxycyanide of Mercury.—*The Best of Antiseptics.*—Compared with corrosive chloride (*Comptes Rend. Soc. Biol.*, July 6, 1888). (1.) Its solution has a slightly alkaline reaction and precipitates albumin only slightly. (2.) It is less irritant than solutions of sublimate. (3.) There is less absorption by tissues than in case of sublimate. (4.) Solution $\frac{1}{1500}$th does not attack, except slightly, the materials used in surgical instruments. (5.) Tested by its power of keeping soup, the antiseptic power showed itself six times greater than that of the bichloride. (6.) Tested by the power to destroy the micrococcus pyogenes aureus, the advantage was slightly in favour of bichloride, $\frac{1}{1400}$th to $\frac{1}{1300}$th. (7.) Employed on suppurating surfaces or to render a mucous surface antiseptic, it furnishes much better results because of the tolerance by tissues and of feeble absorption.—The cyanide of mercury has about the same properties, but the oxycyanide is more powerful against the micrococcus pyogenes aureus. (American Journal, Sept., p. 288.)

Phenacetin.—*A New Antipyretic.*—This chemical product, brought to the attention of the profession a year ago by Kast and Hinsberg (*Centralb. med. Wiss.* 1887,) has been tested by a number of observers and seems to be of great promise. It is a tasteless powder, almost insoluble in the usual solvents; hence, is to be given in capsule or placed on the tongue. The latter way is agreeable enough, even in children, because it is absolutely tasteless. Given to a healthy individual, in quantities of gr. xxx to gr. xlv in a day, absolutely no bad effect has been noted (Rumpf; *Berl. Klin. Woch.*, June 4th). Neither have unpleasant symptoms accompanied its administration in disease. As an antipyretic, Rumpf finds it absolutely reliable and without drawbacks. In doses of gr. viij, and wtth half that quantity in children, he saw the temperature constantly fall from 3.6° to 5.4° F. Used as an analgesic, it showed itself decidedly useful. Rumpf prefers phenacetin to antiyprin and antifebrin, on any account of its greater effectiveness and the absence of unpleasant after-effects. (American Journal, Aug. p. 177.)

Phenacetin.—Phenacetin is a slightly reddish inodorous and tasteless powder soluble with difficulty in water, a little more soluble in glycerine, but most readily in hot alcohol; it is insoluble in acids (except glacial acetic acid) or alkaline liquids. Though absolutely tasteless it is most conveniently administered in capsules with water, this method admitting of the most accurate dosage. In addition to cases of pyrexia the drug was used in one case of neuralgia and one of vomiting. Except in one instance where the urine became discoloured, no untoward effects have as yet been observed. The charts of seven cases given in the paper show that it is an undoubted antipyretic. In cases of pyrexia

the action of the drug begins within half an hour after administration. The patient generally perspires freely, and feels drowsy. Sleep often follows, and pain is relieved, while the patient always says that he feels more comfortable after it. The most satisfactory dose for an adult is about eight grains, and children bear the drug well. It has been extensively used in this Infirmary, both as an antipyretic and as an analgesic in neuralgia, and with good results. (Mr. Osborne Grenfell, Wandsworth and Clapham Infirmary, Practitioner, May, p. 344.)

Poisons.—*General Antidote for any Poison of Unknown Nature.*—(*Pharm. Rundschau*).—Magnes. ust., carbon. lig., ferri. oxid. hydrat., equal parts with sufficient water. (American Journal, Sept., p. 291.)

Scarlatina Maligna.—*Treatment.*—Dr. A. Sharkhovski, writing in the *Russkaya Meditsina*, strongly recommends hourly doses of salicylic acid or salicylate of soda in malignant scarlet fever, saying that since he adopted this treatment his mortality has been very greatly reduced, only three cases having proved fatal out of 125, all of them malignant, these three being cases where some other disease or bodily defect was present. The prescriptions which he gives are: Forty grains of salicylate of soda in six ounces of distilled water; a teaspoonful to a tablespoonful to be taken every hour according to the age of the patient, Or, better still, fifteen grains of salicylic acid in six ounces of hot distilled water and one ounce of syrup of orange. This does not deposit on cooling, and is not disagreeable, so that children take it readily. (Lancet, July 7, p. 37.)

Spirit of Methylene as a Substitute for Spirit of Chloroform.—In order to institute a comparison between methylene and chloroform, let the practitioner make spirit of methylene by mixing methylene with alcohol in precisely the same proportions as in making spirit of chloroform, and then test the two solutions. It will be found that the spirit of methylene is much less pungent, softer to the taste, and much pleasanter than spirit of chloroform; and that, while it is a more acceptable compound for the prescription, it possesses equal utility and facility as a medicinal remedy. The *Formula for Spirit of Methylene* is: Methylene, 1 ounce; rectified spirit, 19 ounces. Dose, 10 to 60 minims.—*A Compound Tincture* can also be made, as follows: Methylene, 2 ounces; rectified spirit, 8 ounces; compound tincture of cardamoms, 10 ounces. Dose, 10 to 60 minims. (Dr. B. W. Richardson, Asclepiad, No. 19, p. 211.)

Strophanthus.—Administered in a dose of five to fifteen drops three times a day, Fraenkel finds (*Deutsche Med. Wochen.* of Feb. 23 and March 1, 1888) the drug quite useful in those cases of heart trouble dependent either upon valvular disease or upon

inefficiency of the cardiac muscle. In excessive dilatation, or in circulatory lesions resulting from chronic contracted kidney, he believes it to be useful, but that it can in any way replace digitalis in his hands is apparently impossible. In some cases of valvular diseases he used it with negative results. In cases of arterial sclerosis of all varieties and causes Fraenkel found strophanthus of some value, although he found it necessary to give as much as fifteen drops of the tincture three times a day; a dose somewhat larger than that commonly employed in this country. In conclusion, Fraenkel summarises his remarks to the following effect: That strophanthus is an efficient heart tonic which can in no sense approach to digitalis, save in some individual cases, where it seems to act more favourably, owing to the presence of some peculiar condition. As a result of this he states that, sometimes when nothing but disappointment has followed the use of the older remedy, the greatest success has followed the employment of strophanthus. The best results reached with the use of strophanthus were in functional disorders, however, such as those commonly brought about by alcohol and tobacco, and also in the removal of ascites dependent upon portal engorgement. (Medical News, May 5, p. 496.)

Typhoid Fever.—*Treatment.*—A very suggestive and comprehensive clinical lecture of Ziemssen's on the treatment of typhoid fever will be found in Centralblatt Gesammte Ther,. March and April, 1888. His remarks on diet and the temperature are especially interesting. Nitrogenous matter should not be omitted from the diet any more than in health, because Bauer and others have shown that it does not increase the fever and is in great part absorbed; while carbohydrates are especially well taken by patients. Only liquid food is allowed, and especial care should be taken throughout the sickness for changes in taste and consistence. Oatmeal and barley gruels are recommended for continued use—many variations may be given their taste by flavourings. Soups he also gives freely—but they should be carefully strained and freed from any particles. Plain stock, with or without the yolk of egg, meat extracts, meat juice, &c., are excellent. Milk Ziemssen praises as a superior article, but limits the amount to one pint per diem, warning against too great quantity. Raw beef-juice he uses as a routine article, and warmly commends. It is pressed from the raw beef—keeps twenty-four hours on ice and in porcelain, and shows six per cent. albumen; one drachm is given at a dose, and five or six teaspoonfuls in twenty-four hours. Two drachms may be added to a pint of soup, which should not be hotter than 147°); a small quantity of Liebig's beef extract improves the taste. When the stomach rejects food an ice made with beef-juice is well borne. It has the advantage over egg (alb.)

that it does not create disgust in the patient. To broths Ziemssen adds beef extract in very small quantity, both for taste and stimulating effect on the nervous system. If eggs are given, three a day, as a rule, are enough. For the fever Ziemssen especially recommends the lukewarm bath gradually cooled. The patient sits in a bath of 87°-92°, and the water is kept in constant motion and splashed continuously on the parts out of water. It is to be cooled down about 10° by cold water poured on to the patient's feet. The duration of the bath should be not under fifteen minutes, nor over thirty. This form of bath is suited for most cases. The very cold bath Ziemssen condemns as causing too great shock, but he does use as low a temperature as 67°, being guided by the fever and nervous disturbance. A warm bath Ziemssen has found very beneficial in the adynamic state. Of the use of antipyretics, strange to say, Ziemssen says nothing, barely referring to antipyrin as preferable to other antipyretics. (American Journal, Aug., p. 178.

Typhoid Fever in Children.—Forchheimer (New Orleans Med. and Surg. Journal, April, 1888) emphasises the fact that the disease in children almost always begins suddenly. The child will be playing about in the morning, languid in the evening, and quite ill by the next day. Insomnia is frequent at night, often alternating with drowsiness during the day. Iliac tenderness will be elicited on deep pressure. Epistaxis occurred in only five per cent. of seventy cases which he has recently treated, though in some epidemics it is frequent. Sneezing is sometimes seen, contrary to Liebermeister's dogma. The tongue is as in adults. Bronchial catarrh and cough are nearly always present. Constipation is much more common than diarrhœa, which, however, usually occurs sometime during the disease. Enlargement of the spleen has not the same importance as in adults, and, though generally present, may be wanting. Vomiting is very common, especially at the inception. The lesions of the bowel are much less severe than in adults, and only one of the seventy cases had hemorrhage, and none perforation. The greatest characteristic is the profound impression on the nervous system, which often persists to some extent for years. The pulse does not rise in proportion to the temperature; the heart not being severely affected. Complications are not frequent, the commonest being aphasia, of which we have no explanation. A sequela not occurring in adults is tuberculosis of the intestines, lungs, or meninges. The prognosis is very favorable, as up to the age of twelve years the mortality is hardly over five per cent. For treatment he uses the abortive method with calomel, antipyrin to lessen pain and for its antiseptic effect, absolutely liquid diet, the use of a day and a night bed, the lukewarm bath, whiskey, often dilute nitro-muriatic acid. (American Journal, July, p. 69.)

Warming Medicines before Administration.—Lewin (*Berlin. Med. Wochens.*) recommends the warming of medicines before administering, and of subcutaneous solutions as well. The absorption, he points out, is much quicker and the dose necessarily smaller. (American Journal, Sept., p. 286.)

Weil's Disease.— Amongst the latest additions to the category of "unnamed" disorders is a striking febrile affection, which was first described by Weil in 1886. Its symptoms are those of an acute fever, of comparatively short duration, but accompanied by jaundice, swelling of the liver and spleen, nephritis, and severe nervous symptoms. In the current issue (No. 12) of the *Fortschritte der Medicin*, Dr. Unverricht collates the records of cases of this "disease" which have been described since the publication of Weil's paper. Thus Dr. Goldschmidt gave one from the Nuremberg clinic. Dr. Aufrecht referred to two cases published in his Pathological Reports, which seemed to fall under this head. The one supervened in a phthisical patient, who was suddenly attacked with jaundice and albuminuria. The other was in the case of a previously healthy man, who died from uræmia, after an attack of fever, with jaundice, enlarged liver, albuminuria, and finally suppression of urine. After death the chief lesion consisted in abundance of dark granules in the renal and hepatic cells, and Aufrecht termed the condition "acute parenchymatosis." Wagner related two cases of acute fever, short in duration, with jaundice and albuminuria, muscular pain, especially in the calves of the legs, and slight enlargement of spleen. Both commenced with labial herpes, and epistaxis occurred frequently. Wagner was inclined to class these as "bilious typhoid." Roth gives a parallel case, which he attributed to "salad poisoning." Haas records ten cases, all marked by fever, jaundice, splenic swelling, gastric disturbances, headache, and myalgia (especially in the calves). In his cases the liver was not often enlarged; albuminuria occurred occasionally, and some suffered from herpes. He was inclined to class these cases with abortive typhoid, for they occurred during epidemics of typhoid fever. The most exhaustive and latest contribution to the subject is a paper by Fiedler, who has collected thirteen cases. He points out that the disease begins suddenly, without prodromata, often with a rigor; also high fever, headache, gastric disturbance, jaundice, and myalgia (in the calves). The pyrexia runs a typical course, lasting eight or ten days; then subsides by crisis, occasionally having a short relapse. The pulse-rate is frequent at the first. Swelling of the spleen and liver is frequent, but not invariable; and nephritis often occurs. Occasionally there is herpes and erythema. The prognosis is favourable. The patients are mostly males in the prime of life; the disease occurs chiefly during the hot season. Fiedler believes it to be a

specific infective or toxic disorder, and contests the view that it is at all related to typhoid; its sudden onset, the course of the pyrexia, the early appearance of jaundice, the absence of pulmonary catarrh, the herpetic and erythematous rashes, and indeed almost all the symptoms, being opposed to that idea. Moreover, if Aufrecht's two cases were examples of Weil's disease, they neither of them showed typhoid lesions in the intestine. It is noted that nine out of Fiedler's thirteen patients were butchers, a fact which may prove of etiological value. (Lancet, June 23, p. 1258.)

AFFECTIONS OF THE NERVOUS SYSTEM.

Alcoholic Paralysis.—*Treatment.*—In all cases it must be remembered that no improvement can take place unless the patient be prevented from obtaining drink, and all such patients should be watched, and deception must be expected and looked for. Rest in bed is necessary, and after acute symptoms have subsided galvanisation of the affected nerves and muscles is useful. If there is much pain, hot fomentations and anodyne liniments are very useful. Cocaine may be applied locally or injected hypodermatically. Opium must be given with great care. Rubbing is of great value, particular attention being given to the extensor muscles of the toes, and by this means contracture of the calf-muscles is prevented and recovery hastened. Internally, iodide of potassium, with strychnia and iron, has seemed to do good in my cases. I consider strychnia a most valuable remedy in chronic alcoholism. The application of blisters and counter irritants along the course of the nerve-trunks is also useful, but, of course, interferes with the rubbing, which I believe to be the most useful of all modes of treatment in this complaint. It is difficult to estimate the value of drugs in this disease, for probably the mere withdrawal of alcohol is quite sufficient for the cure of most cases. (Dr. Suckling, p. 165.)

Amylen Hydrate.—Additional evidence comes forward as to the hypnotic and antispasmodic action of amylen hydrate (*Central. für ges. Therap.*, April, 1888). Dr. Franz Gürtler reports the results of its use in the Königsberg Poliklinik. In children it is given in pill with milk or mucilage, and capsules are preferred for adults. The dose varies from two grains in children to eighty grains in adults, and in one case of alcoholic delirium Gürtler gave one hundred grains. The cases in which given with varying, but, on the whole, good results, were alcoholic insomnia, hemicrania, morphiomania, epilepsy, cystitis, hooping-cough, etc. (American Journal, June, p. 616.)

Friedreich's Ataxia.—Three cases of this interesting disease are recorded by Dr. G. B. Shattuck (*Boston Medical and*

Surg. Journ., Feb. 16, 1888), one of them having come under his personal observation. This case, a boy, fourteen years of age, exhibited the first symptoms when eight years old. At this time he began to stumble when walking, and his gait was unsteady. The disease steadily advanced; affection of speech appearing when about twelve years old. Examination showed a well-nourished, intelligent boy exhibiting a markedly ataxic gait, ataxic movements of the hands, slight oscillations of the head, slight tremor of the tongue, and a jerky and ataxic speech. The knee-jerks were absent, plantar reflexes present, sensibility of the legs slightly diminished, and transition a little delayed. There was no atrophy or loss of muscular power, and no nystagmus. Lateral curvature of the spine was present. The parents are healthy, and there is a total absence of a history of nervous disease in the family connection. There were ten children in the family, and of these a brother of the patient, now twenty-four years old, began to exhibit slight unsteadiness in his gait when seven years old, and has now entirely lost the use of his lower limbs. A sister ten years old first complained of weakness, with palpitation of the heart, when five or six years of age; developing an awkward gait at the same time. She has also a curvature of the spine. (American Journal, May, p. 514.)

Methylal as a Hypnotic in Mental Disease.—This substance was first introduced by Personali (*Progrès Medicale*, July 2, 1887). On animals it had both physiological, sleep-producing and toxic effects, ending in coma and paralysis with acceleration of pulse and respiration. Like paraldehyde and most hypnotics, it is eliminated by the lungs; it controls convulsions and is antagonistic to strychnia. Mairet et Combemale (*L'encéphal*, 1888), found that gr. lxxv-℥ij were necessary to produce sleep, and that it was of value in chronic mental cases, but not in acute; that the effect was exhausted in six or eight days, but a few days' rest made it active again. It is relatively all the more valuable because in mental cases few hypnotics are to be depended upon; chloral, especially, in these observers' experience, is often disappointing. The dose is given in sweetened water at bedtime. The analysis of cases is minute and the number of groups large, but it suffices to say that the results in general were good, except in acute mania. Special advantages are its solubility, pleasant taste and innocuousness. The authors consider it "justly superior to chloral, urethan and opium preparations. (American Journal, Sept., p. 285.)

Migraine.—*Indian Hemp in.*—The alcoholic extract is the best form of the drug to prescribe, and nothing but the freshly made preparation can be relied on. It is very necessary to insist on this. One-third of a grain made into a pill and taken every

night, or every night and morning, is generally sufficient to begin with, and in severe cases the dose may be quickly raised to half a grain or two-thirds. I have never seen unpleasant symptoms follow this course, except in the case of a patient who foolishly took a double dose before breakfast, and in whom slight but not alarming toxic effects were produced. It seems certain that more than one grain should never be given except to patients habituated to its use, and even in them I would not order so much unless the extract were part of the specimen from which the same patient's last prescription had been made up. The British Pharmacopœia correctly gives the dose at from a quarter to one grain, while in Christison's Dispensatory it is put at from two to five grains, a statement which can only be explained by supposing that the extract used was either old or carelessly prepared. Still it would seem not to be generally looked on as a poison. I see no mention of it in Taylor's book, and Mr. Wynter Blyth passes it by in his admirable work on poisons. Unlike opium, no craving for further doses follows its medicinal use, and apparently it can be given up without the slightest effort at any time. (Dr. Richard Greene, p. 176.)

Migrainous Headaches.—*Salicylate of Soda in.*—I am in the habit of directing the patient, when he awakes with any feeling of headache, to take twenty grains of the salicylate in a wineglassful of water, made effervescent by the addition of a dessertspoonful of the granular citrate of caffein, and if necessary to take a second or even a third dose at intervals of two hours. The effervescing caffein makes the dose a very palatable one, which the salicylate alone is not, and probably renders it more useful; but that the good effect is not due to the caffein is proved by the fact that I have seen it relieve persons who had previously used the caffein alone without benefit. It does not, as far as I know, lose its effect, as a patient of mine, to whom I gave it more than two years ago, tells me that she finds it as valuable as when she first began its use. One lady informed me that she doubted the advantage of keeping off the attack, as she found that it did come at last, and was then far more severe than ever. This, however, has been in my experience a solitary instance of the storing up of the nerve storm—a phenomenon which has been from time to time observed when epileptic seizures were postponed by the administration of the bromides, and its occasional occurrence does not lessen the propriety of keeping off the headaches when we can. (Dr. J. Little, p. 174.)

Sulphonal as a Hypnotic.—The agreement among observers as to the unqualified merit of sulphonal is certainly remarkable. Œstreicher (*Berlin. Klin. Wechens.*) finds it somewhat slower in action than the other hypnotics, and advises its administra-

tion several hours before bedtime—nevertheless, he finds it very reliable, and recommends it especially for mental cases. Cramer's experiments wholly lie with this class. In 407 trials on 92 mental patients he had positive success in 92·6 per cent., the administration being followed by sleep of five or more hours, commencing for the most part in half an hour. He saw no bad results, though in one case ℥j in six days, and in two others gr. xlv daily for two months were given. Schwalbe's paper (*Deutsche Med. Wochens.*, June 21, 1888) is the most exhaustive, and his trials very carefully conducted. Out of 50 patients, in 66 per cent. a prompt and satisfactory action was obtained; in 24 per cent. the result was relatively poor, and in 10 per cent. negative. The patients had varied diseases, but analysis shows the important fact that in 24 cases of purely nervous insomnia success was complete in 90·3 per cent. On the contrary, when the primary affection determined the sleeplessness, the test was satisfactory in only 44·4 per cent. of cases. Schwalbe concludes from this, in agreement with Kast, the original observer, that sulphonal is purely a hypnotic and not a *narcotic;* that it has the power to quiet the excited brain and restore the equilibrium, if disturbed by a minor influence only (e.g., a *slight* amount of pain), but retains this power only within narrow limits. Unlike morphine, it does not first diminish pain before sleep, nor in cases of cough did it diminish the tendency thereto during sleep. Schwalbe found it of no effect in cardiac dyspnœa, contrary to the experience of Kast (amylen hydrate, on the other hand, Schwalbe found to produce sleep in these cases, or at least an improvement in the dyspnœa). In twelve per cent. of cases, slight ill-effects were produced, of which the most constant were headache and vertigo, but nothing of importance. No serious after-effect was observed. In children the success was especially well-marked. Schwalbe's dose was gr. xv–℥ ss; in children, gr. iv. (American Journal, Sept., p. 285.)

Tumour of the Spinal Cord.—*Removal and Recovery.*—At the Royal Medical and Chirurgical Society, on June 12th, 1888, Dr. W. R. Gowers, F.R.S., and Mr. Victor Horsley, B.S., F.R.S., communicated a case of tumour of the spinal cord, with removal and recovery. The following is an abstract:—Medical history of the case by Dr. Gowers: The patient was a man, aged forty-two, who had suffered for three years from localised pain beneath the lower part of the left scapula. The pain varied much; at times it was scarcely felt, at other times it was most intense, and then was increased by movement to such a degree as to render it impossible for the patient to walk. Many medical men were consulted, and the diagnosis varied between aneurysm and neuralgia. Hypochondriacal insanity was even suggested on account of the irritability of the patient, whose

mind almost gave way under the continued suffering. Four months before the operation, first the left and then the right leg became weak, and the loss of power gradually increased to complete paraplegia. The patient was first seen by Dr. Gowers (with Dr. Percy Kidd) on June 4th. There was then motor and sensory paralysis up to the level of the sixth or seventh dorsal nerves, with intense spasm in the legs, foot clonus, and rectus clonus. The urine was retained, and there was some cystitis. At the level of the sixth dorsal nerves there was severe pain around the trunk, greater on the left side, and increased to agony by any movement. The symptoms pointed clearly to compression of the cord by a morbid process outside it. Caries of the spine could be practically excluded; aneurysm was improbable, although not impossible. The diagnosis lay chiefly between a tumour of the spinal bones and a tumour of the membrane. The indications (described in the paper) made a meningeal tumour rather the more probable. Syphilitic disease could be excluded. An operation afforded the only chance of escape from certain death after intense suffering. Sir William Jenner saw the patient, and concurred in the diagnosis, and sanctioned an operation. The patient was aware of the uncertainty of the result, but was extremely anxious that something should be done.—Surgical history of the case by Mr. Horsley: The diagnosis of intradural tumour pressing on the cord appearing to be well founded, an operation was performed for its removal. After some difficulty the growth was discovered and removed under strict antiseptic precautions. The wound healed by the first intention, and the patient gradually lost the agonising pain, and at the same time gradually recovered motor and sensory power, as well as the control over the bladder and rectum. He remains in perfect health. Appended to the surgical history of the case is a table and analysis in which the chief clinical facts relating to fifty-seven other cases are recorded, and from which it appears that operation is the only treatment to be adopted in such cases, and that, if it had been resorted to, 80 per cent. should have recovered, whereas all died. (Lancet, June, p. 1194.)

AFFECTIONS OF THE CIRCULATORY SYSTEM.

Cardiac Therapeutics.—Eichhorst (*Centralb. für Ther.*, March, 1888), in a very practical paper, gives some valuable hints regarding the more modern remedies in affections of the heart. Digitalis, he says, still holds the first place among these. It is of great practical importance that the remedy be given in conjunction with or immediately after alcoholic stimulants and excitants. Especially is this the case when marked cyanosis exists. Digitalis in those cases has no effect until the vagus

centre is stimulated by the administration of alcohol. When a quick effect is desired, the drug in the form of powder should be employed. In certain forms of kidney disease the powder may prevent threatened attacks of anæmia. The powdered digitalis-leaves are very much increased in potency by the addition of calomel, not only in the dropsies of heart affections, but also in that occurring in emphysema, marasmus, and in liver disease. The author thinks that the cumulative effect of the remedy is exaggerated. He has given it for months without noticing any such effect. Next to digitalis, according to the author, stands strophanthus. Comparing the two, he says that digitalis is quicker and more certain in its action, but that strophanthus has the advantage in showing no tendency to cumulation, and does not seem to lose its effect by long-continued use. Eichhorst has found strophanthus more efficacious in some cases than digitalis, especially in a case of exophthalmic goître and in one of long-standing ascites. Sulphate of sparteine stands low in the list after the two foregoing drugs. It seems particularly applicable in cases of cardiac asthma. Next come preparations of caffeine, which have the advantage over the last-named drug from their diuretic properties. *Adonis vernalis* and *Convallaria maialis* have but very slight effect on the heart, and are uncertain diuretics. In addition, they are likely to cause nausea and vomiting. Regarding Oertel's method the author expresses himself as follows: In all forms of cardiac weakness it is advantageous to diminish the quantity of fluid ingested; the amount of fluid allowed should always be in proportion to the quantity of urine excreted. In reference to bodily exercise one should observe the greatest caution. Violent exercise may cause over-distension of the heart, and consequent sudden death. This is especially likely to happen in cases of fatty degeneration of the heart muscle. On the other hand, in cases of retarded action of the heart, from the accumulation of subpericardial fat, methodical exercise is advantageous in freeing the heart from its mechanical burden. (N. Y. Med. Journal, Aug. 4, p. 136.)

Chronic Diseases of the Cardiac Muscle.—After a very interesting discussion on this subject, Oertel (*Therap. Monatshefte*, 1888) draws the following conclusions concerning his method of treatment: (1) Only good results are obtained in the mountain resorts (*Terraincurorte*) in the latter stages of fatty heart, where there is no evidence of sclerosis of the coronary arteries, occurring usually in persons advanced in years, with serous plethora, venous congestion and often œdema. These good results consist in increase of the heart's strength, a regulating of its action, increase of albuminous matter composing it, and often a decrease of its amount of fat. There is also an increase of the general bodily powers. (2) There is further ob-

tained by this method, in cases of valvular disease, or of obstruction to the pulmonary circulation, an increase of the muscle substance of the heart, and the production of compensatory hypertrophy. (3) Extensive non-compensatory dilatation, resulting from diminished strength of the heart muscle and increased intra-cardiac pressure, in not too chronic valvular lesions in young people, is made to disappear. (4) There is obtained the most complete possible adjustment between the arterial and venous apparatus, together with increase of the quantity of blood and of the pressure in the aortic system, and diminution of cyanosis and of œdema. (5) Diminution and complete disappearance of disturbances of the respiratory apparatus, especially of the rapidly developing dyspnœa and oppression are obtained. As regards the permanence of the good results produced through this dietetic-mechanical treatment, time only can decide; but the author has patients in whom the restored compensation has lasted at least twelve years.

Lichtheim's conclusions are as follows: (1) Oertel's method is a sovereign means of cure for those forms of chronic heart disease whose genesis is due to intemperance in eating and drinking, and to lack of bodily exercise. (2) In those diseases of the heart, on the other hand, due to the dilating influences of immoderate bodily exercises, or other causes, this method is of no value. Bodily exertion is only to be allowed in moderation and when there is tolerable compensation, and it must never be allowed to produce much dyspnœa. This class of cases is to be treated much more carefully than are instances of real valvular disease. (3) The treatment with digitalis, strophanthus and caffeine remains the principal one for disturbances of compensation. Where the use of drugs fails, the dietetic method is also of no avail. Only in the removal of hydrosis is Oertel's method of real assistance to the treatment with drugs, though it can never take the place of the latter. (4) During the period of intact compensation the use of medicaments is superfluous, and Oertel's method, used in moderation, finds its true field. (American Journal, Aug., p. 184.)

Heart Failure.—*Hypodermic use of Nitroglycerine in.*—Fussell (*Med. and Surg. Report.*, 1888), reports three cases of heart failure in all of which death seemed imminent. The first patient was a case of mitral disease, subject at times to the usual symptoms of general venous congestion. She had been taking nitroglycerine by the mouth, and had been feeling unusually well, when she was suddenly seized in the night with intense dyspnœa, and soon became unconscious, while the lungs were filled with bubbling râles. Two drops of a one per cent. solution of nitroglycerine were administered hypodermatically, though the case was considered hopeless. In twenty minutes the dose was

repeated, and in the course of an hour the patient could talk and lie down without trouble, and the râles had almost completely disappeared from the lungs. A second case was one of syncope and sudden heart failure in the course of typhoid fever. The face was cyanosed, and the pulse irregular and so rapid that it could not be counted. The drug in this instance had an equally good effect. The third patient, one suffering from mitral disease, was relieved from suddenly developing symptoms of, extreme cardiac insufficiency by two drops of a solution of the drug, followed by one drop more in half an hour. The author highly recommends this plan of treatment on account of its superiority to the hypodermatic use of whisky or digitalis, both in certainty and rapidity of action. (American Jour., Sept. p. 299.)

Nævus.—*Application of Ethylate of Sodium in.*—As a rule, I employ the sodium ethylate in practice, but I have many times used the potassium salt in cases where it was important to destroy a structure very promptly. Whichever of the preparations is employed, it should be in a solution made by saturating the alcohol with the element until a solution of sp. gr. ·880 is obtained, or by the addition of absolute alcohol to the crystallized salt until a solution is made of the same specific gravity. The solution should be kept in a cool place apart from the light. Originally I recommended that in applying the solution a glass rod should be used, and with the potassium ethylate this is still advisable; but with the sodium solution it is not necessary; a good camel's-hair pencil is all that is required. In treating nævus, I first dry the surface with a piece of cotton wool; then with the brush I thoroughly coat the dried surface with the solution. The application causes, always, some effusion and redness, accompanied by a little pain, expressed by those who are old enough to describe it as a burning sensation, like the sting of a bee or a nettle. After a short time there is an exudation of water, in drops, from the red surface, which exudation lasts for a few minutes, and is followed by dryness, and sometimes by pallor or duskiness of appearance. In the course of four or five hours a scale begins to form, and continues until there is quite a hard crust, which completely covers the nævus, but through which the soft vascular character of the swelling can be detected. Originally, after it was formed, I allowed the crust to remain for a few days, then removed it with a wire scoop, and reapplied the solution over the red surface. The proceeding led to a rapid cure, but it was so painful as to demand the use of a general anæsthetic. I have, therefore, given this up for a mild and sure but rather slower method. After the first crust is fully formed I pass through it on the third day a fine needle with cutting edges, shaped like the old cataract needle, and with this I break up the vascular surface underneath, and on

withdrawing the needle make firm pressure with lint on the upper surface. A large drop or two of blood flows out freely, but further escape is easily controlled by a dossil of lint charged with styptic colloid. When the bleeding has quite ceased, a drop of the ethylate solution is inoculated into the nævus, through the punctured opening, a new layer of it is painted over the crust, and the crust is left as it was. The crust may be left four days more; and if at that time the vascular softness still remains under it, it must be treated by puncture and re-injection just as before. When at last the crust feels firm and dry beneath, the cure may be considered as complete, and the crust may be left to scale off by itself, leisurely. In the treatment of raised nævus by this plan, I have never seen the least untoward symptom of moment, and although some cases have been rather more tedious than others, there has not been one failure of cure. In fact, I have come to look on the method as specific for the ordinary raised circumscribed nævus. In respect to the smooth, diffused nævus, commonly called "*mother's mark*," or "*port-wine stain*," I have not so good a report to offer. I have twice succeeded remarkably in the cure of this form of vascular affection, but I have several times failed, and in some instances, as already related in the Asclepiad, the treatment has given rise to a true cheloid, which has been most difficult to remove, and has not improved the appearance. For these cases, therefore, until I understand it better, I do not press the ethylate treatment, except the affected patch be small and be slightly raised above the surface. (Dr. B. W. Richardson, Asclepiad, No. 19, vol. v, p. 231.)

Varices.—*Treatment by Ligature of Internal Saphenous Vein and Extirpation.*—After a brief review of the results obtained by Schede, Annandale, Madelung, Langenbeck, Fry, and others, in extirpating varices, M. Ed. Schwartz details (*Rev. Gén. de Clin. et Sper.*, Feb. 2, 1888) three cases in which he tied the internal saphenous vein at two or three different places, dividing it between ligatures, the indications being in one case a very painful varicose swelling at the inner border of the knee, in another an extensive ulcer, in the third great varicose enlargements of the leg. In the one first mentioned, the venous tumour, having become hard and firm from thrombosis, was enucleated three days after the ligation of the vein. Eight months later there was no serious return of trouble. The ulcer which was two by two and a half inches in size and had persisted for six months, resisting other treatment, healed in eight days. Five months after, the cure remained complete. The third case did not report for observation, but the immediate result was a complete cure. M. Schwartz believes with Langenbeck that, in these cases as in the operative treatment of hernia,

a long time must elapse before a "radical cure" can be claimed, but thinks it safe to say that the multiple antiseptic ligature of varices and even their extirpation when they form painful tumours is strongly indicated, especially when the means usually adopted have proved ineffective and the patients are not much beyond middle age. (American Journal, April, p. 418.)

AFFECTIONS OF THE RESPIRATORY SYSTEM.

BRONCHITIS.—*An Expectorant Mixture for.*—Unless the older depressant expectorants be given in nauseating doses they have comparatively little power, and we think that any of our readers who will use the following cough-mixture in the first stages of bronchitis will never depart from its employment, unless some new remedy of greater power be discovered. The dose of it, of course, must be varied according to the strength and peculiarities of the individual patient. That which we indicate is for a robust man. ℞. Potass. citrat., ℥i; suc. limonis, f℥iss; syr. ipecac., f℥ss; tr. opii camph., f℥iii; syrupi, q.s. ad f℥iii. S. Dessertspoonful every two hours. (Therapeutic Gazette, April, p. 243.)

Bronchitis.—Muriate of Ammonia in.—In the rare instances in which the citrate of potassium mixture fails we habitually resort to the muriate of ammonium, and have often seen very good results. It must be remembered that its action is fugacious, and that it is comparatively of little use when given at longer intervals than three hours. It ought, indeed, to be administered at least every two hours, and when circumstances favour it, it is much better to use it every hour. The dose must, of course, vary with the frequency of administration, but from thirty to sixty grains should be given daily. Much larger amounts than this exert no toxic influence, and we have never seen the patient who would not for a time tolerate a drachm of the remedy a day unless there was some special irritability of the stomach. It may be given in capsules if the stomach be very insensitive, each capsule to be followed immediately by a drink of water; or it may be given according to the following prescription, which affords the best disguise that we have been able to concoct: ℞. Ammonii chloridi, ext. glycyrrhizæ, āā ℥iss; glycerini, f℥ss; mucil. acaciæ, f℥ii: syrupi, aquæ, āā q.s. ad f℥iii. S. Dessertspoonful every two hours. (Ibid, p. 243.)

BRONCHITIC AND OTHER COUGHS.—*Chloroform in.*—The advantages which can be obtained in bronchitis from the use of ordinary narcotics, such as morphine and hyoscyamus, and the difficulties which surround their action, are too well known to our readers to require comment. It is, however, perhaps not as widely recognized that chloroform is one of the most valuable

remedies that we have for quieting cough; perhaps it may also be allowable to call attention to the fact that in nervous or hysterical females or males in whom the nervous element dominates all the bodily functions, often the best expectorant mixture is simply one containing pure narcotics. A mixture which we have often used with great advantage, and which is readily prepared in the household without the intervention of the apothecary, is made by adding a dessertspoonful each of whisky, paregoric, and glycerin, and 30 minims of chloroform. The whole to be well shaken and to be taken in teaspoonful doses *pro re nata.* Many a night's rest have we seen secured by placing a little bottle tightly corked of such mixture by the bedside of the patient and allowing him to take a sip whenever required. (Ibid, p. 242.)

Empyema.—*Syphon Exhaustion in.*—At the Medico-Chirurgical Society of Edinburgh, on March the 7th, 1888, Mr. John Duncan showed a method of applying syphon exhaustion to cases of empyema. It consisted essentially of a large flat piece of plain rubber, a long rubber tube, and an air-tight pliable bag. The cavity was filled with warm boric lotion. The tube, also filled, was inserted into the cavity through a hole in the plain rubber cut smaller than itself, and an elastic bandage passed round the chest to keep the rubber in position. The air-tight bag was then filled, and by pressure at the bottom half emptied again. While the bag was brimming over the tube passed through its screw stopper was inserted into it, and the stopper screwed home before the pressure was relaxed. The patient could walk about with the bag in his pocket. In one case in which this method had been tried it had worked very satisfactorily. When first commenced the capacity of the empyema cavity was thirty ounces. In one month it had diminished to a capacity of seven ounces under pressure (when the syphon action was reversed), five ounces when the bag was held on the same level with the chest, and two and a half ounces when the bag was lowered. After that the patient was allowed to have it under his own control, but by neglecting to adjust the bag properly when inserting the tube he allowed air to enter, put a stop to the syphon action, and enlarged the cavity, which was again reduced under proper treatment, and now contained only half an ounce when the syphon was acting, five ounces when reversed. (Edinburgh Med. Journal, July, p. 65.)

Hooping-Cough.—*Cocaine in.*—Dr. Wenetraub, of Edyknhuen, has used cocaine with remarkably good results in cases of hooping-cough, where other remedies and expectorants had failed. He prescribes the following formula: ℞. Cocain. muriat., 2 grammes (gr. iij.); aqu. amygd. amar., 10 grammes

(℥ iiss.) S. 10 to 15 drops, to be given several times daily. So soon as this treatment was commenced, the paroxysms of coughing became less intense, vomiting ceased entirely, and in about two weeks the disease had disappeared. Four children were treated, who were about three years of age, and the result of the treatment was equally satisfactory in every case. No symptoms of intoxication or poisoning were observed. (Edinburgh Med. Journal, May, p. 1045.)

Hooping-Cough.—Instantaneous Cure for.—Dr. Mohn, according to *Revue Mensuelle des Maladies de l'Enfance*, May, 1888, claims that he has in a number of cases produced instant and permanent cure of hooping-cough by fumigations with sulphur. His method of procedure is as follows: In the morning the children are clothed and removed from their sleeping-room, in which are hung all the clothing, toys, and, in fact, everything with which the children are brought in contact. In this room about four ounces of sulphur for every cubic yard of space is ignited, and the sulphurous acid allowed to remain in the room for about five hours. The room is then well aired, and the next evening the child sleeps in a room and bed which have been completely disinfected, and it is said that cure is at once produced. As to whether this will be attained in all cases we do not presume to state. (Therapeutic Gazette, July, p. 482.)

Hooping-Cough.—Sulphurous Acid Fumigation in.—I cannot advance such evidence of immediate cure as Dr. Mohn has given, but I can most emphatically endorse his statement of the benefit to be derived from the treatment. I thoroughly believe that if this method could be at all generally applied throughout the country during, say, six months from any given date, hooping-cough would become as rare a disease as the plague. (Mr. F. E. Manby, p. 217.)

Inhalations.—*Their Value in the Treatment of Lung Diseases.*—The following conclusions are appended to a paper by Dr. C. Theodore Williams read at the British Medical Association, August, 1888: 1. That the success of inhalations as a mode of medication depends principally on the easy convertibility into gas or vapour of such substances as are clearly desirable for the purpose. 2. That, consequently, bodies which are volatilised at ordinary temperatures are more readily absorbed by the lungs than bodies which have to undergo combustion before conversion into gases. 3. That all moist inhalations, where steam, watery vapour, or spray is the vehicle of medication, are but slowly absorbed by the lungs, and enter the circulation in small quantities, and, in some cases, not at all, the slow rate of pulmonary absorption contrasting strongly with the rapidity of gastric absorption of the same medicines when swallowed, as

proved by their detection in the urine. 4. That medicinal inhalations are more useful in diseased conditions of the pharynx, larynx, and larger bronchi than in those of the alveoli and lung parenchyma. 5. That in pulmonary disease the antiseptic respirators, while they lessen cough and reduce expectoration, exercise no lasting remedial influence on the diseased conditions of the lungs, and often seriously interfere with the freedom of respiratory effort, which is so desirable in the treatment of such affections. (British Med. Journal, Sept. 29, p. 702.)

Laryngeal Phthisis.—*Treatment.*—In its early stages the treatment of phthisis laryngea ought not to be of an active and meddlesome character; and general advice as to avoiding changes of temperature, damp and cold atmosphere, hot and irritating food and drink, and tobacco smoking, combined with tonics and drugs by inhalation, &c., to relieve the cough, is of more importance than any local throat treatment. When, however, ulceration of tubercular deposits has taken place, and there is much pain on taking food, along with hoarseness and irritating cough, then we must adopt systematic local treatment in the shape of spraying or brushing the affected parts with solutions of cocain in glycerine of borax, 5 to 10 per cent.; cocain pastilles; insufflations of iodoform or iodol; lactic acid carefully applied with the brush, and varying in strength from 20 to 60 or even 80 per cent., gradually increasing the concentration as the parts become tolerant of it. Solutions of menthol in olive oil to allay pain, and insufflations of morphia and bismuth for the same purpose, are good. All these measures must be combined with the usual cough mixtures, tonics, cod-liver oil, &c., which are used in cases of pulmonary phthisis. The question of climate also is very important, and from what I have seen of patients in Davos and St. Moritz, having just returned from a visit to those places, I do not believe that we ought to send our phthisical cases there if the throat is seriously implicated, as the dry rarified air of the Engadine is very irritating even to a normal throat, until one gets acclimatized. Such patients ought to go to a warm climate, such as the Riviera, which, whilst I do not believe it is so valuable as that of the High Alps for the lung-trouble and for the general health, yet looking to the serious prospect of worrying a consumptive larynx, it is to be preferred. (Dr. Barclay Baron, Bristol Med. Journal, March, p. 15.)

Night Sweating in Phthisis.—*Agaricine in.*—We desire to call attention to a remedy which has been used in Philadelphia for the last two years with alleged extraordinary success by some of our German physicians in the treatment of colliquative sweats. In phthisis and similar exhaustive diseases belladonna will usually arrest sweating with certainty, but the dryness of

the mouth which it produces is always very disagreeable to patients, and in some cases to it is superadded an unrest or nervous excitement, which entirely forbids the further employment of the mydriatic. Sulphuric and gallic acids often fail. The remedy that we especially allude to is agaricus, the powdered *Agaricus alba*, or ordinary European agaric, a peculiar toadstool or fungus which grows upon the European larch. There is prepared an impure alcoholic extract of this fungus, which is sold under the name of *agaricine*, and has been very highly praised both by English and German physicians. The dose of this extract is 1 grain to 1½ grains, although it is affirmed larger quantities can be given without detriment. The effects are said to be immediate, without disagreeable accompaniments or sequels. Will not some of our readers make thorough trial of agaricine and report? (Therapeutic Gazette, April, p. 246.)

Night Sweating of Phthisis.—Agaricin.—Lauschmann (*Pest. Med.-Chir. Pr.*, 1887, Bd. 4) recommends the following formula: ℞. Agaricin, gr. j; pulv. ipecac. et opii, gr. xv.; gum arabic, pulv. alth., āā gr. viij. M. Ft. Pil. No. xv. S. One or two pills at night. (Medical News, July 28, p. 100.)

Phthisis.—*Guaiacol in.*—In the treatment of phthisis Professor Fränkel recommends guaiacol as the effective constituent of creasote. The good effects of the latter are unmistakable in a strictly defined class of cases. If used promiscuously in this disease, its good effects are distinctly evident in sixteen or twenty out of four or five hundred cases, and are due not to destruction of the bacillus tuberculosis, but to a favourable influence on digestion. It has long been known that creasote is a mixture of different substances, and last summer Prof. Penzoldt remarked that guaiacol appeared to be its chief therapeutical constituent. Since then Dr. Sahli, of Berne, has written on the clinical uses of guaiacol, and Prof. Fränkel has been using it since the beginning of the year after the following formula: Guaiacol, 13·5; tinct. gent., 30; sp. vini rect. 250; vini xerici, q. s. ad colat. 1,000—a dessertspoonful in a wineglassful of water two or three times a day. This mixture is superior to gelatine capsules or tolu balsam. (N. Y. Med. Record, Aug. 11, p. 156.)

Pleurisy.—*Cocaine in.*—I wish to call attention to the use of cocaine in pleurisy. When the patient has placed his finger on the seat of pain, inject subcutaneously at this spot one-fifth or one-fourth of a grain of cocaine, and repeat the injection once or twice a day. The pain is greatly moderated; the relief produced is unattended by the results that often follow morphine, such as constipation or pulmonary congestion; and a most decided check is placed on the tendency to effusion. (Dr. Colley March, Rochdale, Brit. Med. Journal, July 14, p. 76.)

PLEURITIC EFFUSIONS. — *Treatment.* — Fürbringer (*Berl. klin. Wochens.*, 1888), from careful observations in a series of twenty-five cases, established the following relations between siphon action and aspiration (suction) in removing fluid from the chest —first allowing what would run off by siphon action and then determining the amount that could be got beyond this by aspiration (in all cases no forced exhaustion was used, and the total amounts obtained were only moderate—Fürbringer is no believer in strong suction nor does his instrument admit of it). In 11 cases the quantity secondarily removed by suction was less than one-tenth of the whole amount. In 10 cases from one-tenth to one-third of the whole amount. In 4 cases from one-third to the whole amount. Thus, on an average, in ten per cent. of the cases the siphon fails to remove one-half the exudation, and in some of the cases the main part cannot be obtained except by aspiration. In one of the cases the siphon obtained none, but aspiration ℥xvij. On the other hand, in two cases of ℥lxx and ℥xxx, the siphon exhausted the whole. Of 70 cases, in which the combined method was used, two-thirds left the hospital without its repetition being necessary. In 10 of the remainder needing a second removal, Fürbringer tried siphonage alone, and found 6 of them so tedious that even the attendants remarked their long stay, and repeated operations were necessary in these 6. Fürbringer's conclusion is, that in a considerable number of cases, suction (aspiration) is a factor in healing, to neglect which is a "sin of omission." Fürbringer has constructed an instrument which allows both siphonage and the vacuum. It is on the principle of the ordinary wash-bottle of the laboratory. The long glass tube is connected with the trocar by a yard long piece of rubber tubing. The operator uses another piece of tubing fastened to the short glass tube through which to suck. Three ounces of an antiseptic fluid are first drawn into the flask. After the trocar has been plunged in and the bottle connected with the canula, slight suction with the mouth exhausts the air in the tube between bottle and canula, so that on turning the cock of the canula the fluid flows by siphon action. After this ceases a little suction by the mouth establishes a vacuum sufficient to re-establish the flow. (Amer. Jour., Aug.)

PLEURISY AS A PREDISPOSING CAUSE OF PHTHISIS.—Westbrook, in the N. Y. Med. Journal, says that, admitting the tubercle bacillus as the undoubted exciting cause of phthisis, the question arises regarding the existence of local or general predisposing pathological conditions. Pleurisy would seem to be capable of producing a vulnerability of the lung tissue, though in some instances it is probably merely an indication of constitutional weakness. Pleurisy is, at any rate, often observed as an antecedent of phthisis, but the exact relation of the two has been

much discussed. These cases may be divided into five classes: 1. Those in which a pleurisy with effusion occurring in a person with good health is immediately followed by rapidly progressing pulmonary tuberculosis. The pleural inflammation in these cases is undoubtedly of tubercular origin. 2. Cases of sero-fibrinous pleurisy, followed by a slow development of chronic interstitial pneumonia. This pulmonary inflammation may be tubercular in its origin, but the final development of distinct tuberculosis is at any rate to be looked for. 3. Cases of sero-fibrinous pleurisy ending in recovery, but followed after some months by the development of tuberculosis at one or both apices. These are usually observed in persons constitutionally weak or whose health has been impaired. That the pleurisy was itself tubercular is possible, but rendered improbable by its occurrence in the lower part of the chest, while the tuberculosis which subsequently develops is [? Ed. *Retros.*] 4. Cases occurring in middle or advanced life, in which a sero-fibrinous pleurisy has become chronic, with deposits of false membrane, through neglect or failure to recognise the disease. Many of these finally develop *tuberculosis pulmonum*, but the interval is so great that the pleurisy cannot but be regarded as primary and simple in its character. 5. Cases in which an empyema antedates the tuberculosis. The author reports numerous instances illustrative of these classes, and draws the following conclusions: *a.* Sero-fibrinous pleurisies, apparently of simple origin and terminating in complete recovery, may be followed, after a lapse of a few months, by the development of phthisis pulmonalis. *b.* In all probability the pleurisy in these cases acts as the predisposing cause of the tuberculosis. *c.* Primary sero-fibrinous pleurisy may result in fibroid phthisis with the subsequent occurrence of tuberculosis pulmonum. *d.* Fluid effusions remaining in the chest for a long time may, finally, so interfere with the nutrition of the lungs or of the body at large as to render it liable to general or local tubercular infection. *e.* No case of pleurisy should, therefore, be neglected, but great care should be taken that after apparent recovery the health is completely restored. For at least a year the physician should keep a watch over the patient, and should order a long rest from business, change of climate, &c. In patients who have reached middle life, and whose costal cartilages have begun to lose their elasticity, effusions should not be allowed to remain in the chest more than two or three weeks, and should be aspirated at short intervals, if the fluid reaccumulates. If dulness and feeble respiratory murmur continue after the fluid is absorbed, tonics and alteratives should be persevered with for a long time. The regular employment of gymnastic exercises and the inhalation of compressed air are great aids in re-expanding the chest. (Ibid.)

Pulmonary Affections.—*Balsam of Tolu as an Adjuvant to Creasote in.*—In the *Union Médicale* of April 22nd, Dr. Lasniée pointed out the advantage of combining beech creasote with tolu balsam and Norway pitch. Creasote, which is so useful in pulmonary and laryngeal affections, is not always easily tolerated, sometimes causing nausea and vomiting. It was therefore necessary to find some means of neutralising these inconveniences. This has been found in tolu balsam, the antispasmodic and anti-catarrhal properties of which are well known, and which, together with Norway pitch, forms an excellent and reliable remedy. After numerous experiments, the following formula has been adopted by MM. Trouette and Peret, pharmaceutical chemists, in their capsules, called by them "*gouttes livoniennes.*" ℞. 5 centigrammes of pure beech creasote, 7½ centigrammes of purified Norway pitch, 7½ centigrammes of tolu balsam, to make one capsule. In cases of little gravity, and when used as a prophylactic, two capsules morning and evening are sufficient. In more serious cases, one should begin with four capsules morning and evening, increasing the dose if necessary up to twelve capsules a day. After taking the capsules a little water or other liquid should be swallowed, and it is advisable to take them at meal times. When the disorder is relieved, the use of the capsules should not be suddenly abandoned, and it is also good to take some at the commencement of winter, and at any change of season accompanied by damp weather. (British Med. Journal, June 23, p. 1360.)

Tonsillitis.—*Treatment by Salicylate of Sodium.*—Until I read Mr. Hillaby's communication on the subject in the April number of the Practitioner I was not aware that the virtues of this salt in this painful and obscure disease were not more generally known to the profession. I myself have used it for eight years, and I certainly must have seen reports of cases so treated in the medical literature of the day, before so doing. There can be no doubt of its efficacy in preventing an attack of quinsy from running its usual course. I have treated more than a hundred cases with it, and in the great majority speedy resolution has taken place; in most of those cases which went on to suppuration the remedy had either not been given early enough, or the doses had not been large enough, nor given with sufficient frequency—a most important point where salicylate of sodium is employed, whether in acute rheumatism or tonsillitis. In incipient cases, and especially those occurring in gouty or rheumatic habits, this drug acts like a charm. I give to an adult from ten to twenty grains every two hours, or ten grains every hour until relief is afforded, and then the dose is gradually reduced. I eschew all astringent gargles, and direct the patient to use hot milk and water ones, or when the breath is very

fœtid, warm gargles of permanganate of potassium, or hyposulphite of sodium. In cases where the patient has had several attacks of the disease, small doses do no good at all, and even large ones sometimes fail. Nearly all my failures have been in this class of cases. A few years ago the attention of the profession was called to the wonderfully successful results obtained by treating tonsillitis with bicarbonate of sodium, in doses of from ten to twenty grains every two or three hours. I have been trying it in some of those cases where the salicylate has failed, and although I have no extended knowledge of its effects, I feel justified in saying that it appears equal to the latter in subduing the inflammatory action, and preventing suppuration, besides being free from the tendency of salicylate of sodium to produce tinnitus, vertigo, and deafness. In the case of a gentleman aged thirty-four years, who told me he "had spent the last six years of his life in getting quinsy and getting rid of it," and in whose case the salicylate had failed, I advised him to take ten grains of the bicarbonate every hour as soon as he felt an attack impending, with the result that several have been rendered abortive. (Dr. Chas. Grabham, Pontefract, Practitioner, May, p. 351.)

The Tubercle Bacillus.—*Its Detection and Diagnostic value.*—In staining for the bacillus I do not usually wait till the sedimentation of the more solid constituents of the expectoration takes place; time, or gentle heat as pointed out by Dr. Philip, or the addition of weak alkaline solution and boiling, can bring this about; and one obtains, of course in the precipitate, a greater abundance of the bacilli, and when their numbers are small, all or any of those plans are advantageous. I generally, however, examine the fresh sputum without any preparatory treatment, and find what I look for if it is there at all. The staining properties of the bacillus remain unimpaired for very long; in one photo handed round it is seen after 31 months, and in spit four years old I find they stain as easily as they did when it was recent. For merely diagnostic purposes the most trustworthy stains are two—the aniline-Fuchsine of the Koch-Ehrlich, and the carbol-Fuchsine of the Neelsen solution. The latter is the preferable, for it does not soon decompose, can therefore be prepared in quantity, and stains as intensely after months as it did at first, whereas the aniline water stains soon become turbid and useless. However, if one can be at the trouble to prepare the aniline water each examination, or at most after the lapse of a week or two, it is quite as trustworthy as the other. As to the microscopical requisites, I have to say that if the bacilli are numerous, and one possesses a certain amount of skill in recognising them, they may easily be found with a dry object-glass of 250 diameters, or even less; but

by far the most satisfactory mode is to use some form of condenser, as Abbe's, for illumination, and an immersion object-glass, water, or, still better, oil. The latter can now be obtained very cheaply; and Mr. Forgan has shown me a Leitz, one-twelfth of an inch, quite equal in its performance for diagnosis to the Zeiss one-twelfth, and at nearly one-fourth of the price of the latter. If the bacilli are detected, their diagnostic significance is the highest possible; and they are to be found in every case of tubercular phthisis, and in it alone of lung diseases,—now numerous, now scarcer, but appearing with a persistence that will not escape the notice of perseverance and a modicum of practical knowledge in the search. Therefore a negative result in the hands of one accustomed to the examination (and every one can easily acquire the necessary skill) is also of great value diagnostically. Naturally it is only where the breaking up of the original reaction products has begun and opened a way outwards for the bacillus that it will be found. In acute miliary tuberculosis it will not be seen at the beginning, and it is here and in all suspicious cases that a thorough quest for elastic tissue should be instituted; the two methods should go hand in hand. (Dr. F. Troup, Edinburgh Med. Journal, July, p. 4.)

[See also Dr. Troup's paper at p. 200 of this volume.]

Tubercle Bacillus.—Method of Staining.—Tubercle bacilli are readiest and best stained by Gabbett's method, as described by Günther in the *Wiener klin. Woch.*, No. 13. 1. The dry preparation is placed for two minutes in a solution of fifteen grains of fuchsin in three and a quarter ounces of a 5 per cent. solution of carbolic acid and two drachms and a half of absolute alcohol. 2. The preparation is then placed for one minute in a solution of thirty grains of methyl-blue in three and a quarter ounces of sulphuric acid. The preparation is next rinsed in water and examined in this medium; or, better, is treated with absolute alcohol and examined in Canada balsam. The bacilli are red, the field blue. (Medical News, Aug. 4, p. 130.)

Uræmic Asthma.—I feel quite sure that the agents which give most relief in uræmic asthma are those which relax vascular spasm: and of them the most generally useful is ozonic ether. From half a drachm to a drachm of this will nearly always mitigate the severity of the dyspnœa, and sometimes entirely remove it. In one case an ounce of whisky in hot water gave sleep every night, and prevented the spasm. Another patient, though relieved by similar means, found most benefit from free friction of the chest and arms, and by having them wrapped up in hot cotton wool. When we know the exact nature of the poisons which produce this and other symptoms, our remedies will be less empirical. (Dr. Carter's Bradshaw Lecture, p. 240.)

AFFECTIONS OF THE DIGESTIVE SYSTEM.

ABDOMINAL PAINS.—*Codeine for the Relief of.*—I have tried codeine in cases of long-continued abdominal pain for which no definite cause could be assigned, as no tumour could be felt, and the functional disturbance did not seem sufficient to warrant a diagnosis of malignant disease. I have tried it in cancer of the liver and pancreas with success in relieving pain, and also in numerous cases where the age of the patient, the presence of diarrhœa, tenderness on pressure, and visible peristaltic movements, and thickening of the gut, easily perceptible on palpation, led to the diagnosis of malignant disease in the intestine, although inability to obtain a post-mortem examination prevented the confirmation of the diagnosis. In such cases I generally begin with half-a-grain, in the form of a pill made up with extract of gentian, three times a day; and if this is insufficient to control the pain I increase the dose to a grain, and give it as frequently as seems necessary. As a rule, I find that it does not produce drowsiness, nor has it interfered with the digestive functions. To sum up, the results I have obtained from the administration of codeine have satisfied me that it has a powerful action in allaying abdominal pain, and it can be pushed to a much greater extent than morphine without causing drowsiness or interfering with the respiration or with the action of the bowels. I have found that in cases of long-continued enteralgia without organic disease, it has continued to relieve pain for months together, without the dose being increased beyond one grain three times a day, and I found the same to be the case where the presence of a tumour, in addition to other symptoms, had led to the diagnosis of malignant disease. It is interesting to follow the vicissitudes of a drug, and to notice how its use extends or diminishes until at last it finds its right place and maintains it. Thus digitalis, while mentioned in the London Pharmacopœia of 1721, was excluded from that of 1746. It again appeared in 1788, and since then it has held its place. Possibly codeine, after falling into almost complete disuse as an analgesic for many years, may again regain a more or less important place amongst the remedies which enable us to relieve pain. The relief of pain may be classed next to the saving of life. (Dr. Lauder Brunton, p. 228.)

ANTISEPTIC GARGLE.—The *Union Médicale* credits Muller with the following formula: Thymol, 3½ grains; benzoic acid, 45 grains; tincture of eucalyptus, 180 grains; water, 11,250. At bedtime the teeth are to be cleansed with powdered soap and a brush, and then the mouth can be rapidly sterilised by gargling for half a minute or a minute with the solution. (New York Med. Journal, April 14, p. 420.)

Cancer of the Rectum.—*Excision of.*—(Jordan Lloyd, F.R.C.S., Birmingham, *Birmingham Medical Review*, Feb. and March, 1888.)—Mr. Lloyd's object in writing is to urge early diagnosis and operation in cases of rectal cancer. He urges the importance of careful examination of the rectum in every case in which there is any suspicion of disease. He says that, though anxious to afford his patients the relief that excision would give, he has during the last four years, out of a dozen cases, met with none that he considered suitable for excision, all being too far advanced. He publishes five cases of operation, in one only of which there seems to have been a cure. This he explains is due to his having operated in cases on which he would not now operate, because there could not be any certainty of removing the whole disease. As regards the method employed, Mr. Lloyd prefers splitting the perineum back to the coccyx, and quickly removing all the disease with scissors. For after-treatment he recommends leaving the wound to heal by granulation. Free removal and thorough drainage seem to be his mottoes. None of his patients died from the operation. The unfortunate results, as compared with colotomy for instance, are shock, which is always great after excision, even though there may not be much bleeding, and consequently either incontinence of fæces or stricture. Taking these into account, he considers excision to be the best operation, especially when complete removal of the cancer can be effected. For this early diagnosis and early operation are necessary. That lives may be saved, Mr. Jordan Lloyd pleads with the profession in forcible language, which should carry conviction to every one who has had any experience in these cases, that all cases of rectal disease should be carefully examined with the finger and speculum. (Edinburgh Med. Journal, July, p. 81.)

Cancer of the Rectum.—Extirpation of.—Bardenheuer exhibited his method of operating to a number of the members of the Surgical Congress (*Beilage z. Centralb. für Chir.*, No. 24, 1888). The patient was an old woman suffering from a cancer extending to the breadth of several fingers above the sphincter. *Operation:* Dorsal position, with elevation of the buttocks. The incision in the middle line exposed the coccyx and lower portion of the sacrum; removal of the latter by means of the bone forceps. The sphincter was not divided. The unopened rectum was freed from adhesions by means of tearing with the fingers and blunt instruments, a provisional ligature was placed in the healthy parts above and below, and the tumour was excised. After closure of a peritoneal rent made while isolating the tumour, the continuity of the bowel was again restored by suturing the upper and lower ends together. The sacral wound was left open, the cavity about the rectum being carefully tamponaded with iodoform and iodide of bismuth

gauze, and a thick rubber-tube was placed in the rectum. The duration of the operation was thirty minutes. Bardenheuer has operated in this manner upon thirteen cases, losing two; one from exhaustion in twenty-four hours, one from the rectum being constricted in a rent of Douglas's pouch and becoming gangrenous.

König (*loc. cit.*) subjects his patients to a preparatory course lasting from four to eight days, thoroughly emptying the bowels and withholding food which leaves much detritus. A posterior central incision is made and the bowel torn loose with the finger, often high above the peritoneal attachment. All involved lymphatic glands are removed. The wound is thoroughly washed out with antiseptics (carbolic or salicylic solution), sprinkled with iodoform and either packed with iodoform gauze, after the insertion of a few sutures, or drained by means of numerous deep sutures passing to the rectal walls. Of the sixty cases operated upon, twenty-four per cent. died; ten per cent. remained cured after three years; eighteen per cent. after two years. Three patients suffered from recidivity after they had remained well for upward of three years. In regard to the function of the new rectum, of twenty-one patients examined, but six were able to retain their fæces; three suffered also from stenosis.

Von Bergmann (*loc. cit.*) considers that the danger of rectum extirpation is very much lessened, and prefers this procedure to colotomy; he mentions Bramann's success in this operation—of twenty-seven cases, twenty-six recovering. (American Journal, Sept., p. 305.)

Cancer of the Tongue—*The Pre-cancerous Stage in.*—However tongue cancer begins, it passes through a pre-cancerous stage—i.e., a stage (the duration of which is unknown and varies extremely) in which the inflammatory changes only are present, any ulcerative and other changes in the epithelium which may be present not amounting, as yet, to epithelioma, but on which epithelioma inevitably supervenes. The boundary line between this pre-cancerous stage and cancer is extremely narrow; the duration of this stage may be, and often is, extremely brief. Aids in recognizing this stage are: (1) the duration of the ulcer; (2) its obstinacy to treatment; (3) the age of the patient; (4) absence of any duration or fixity; (5) careful scraping of surface of sore and microscopic examination. In doubtful cases, after cleaning the surface, we should scrape lightly with a spatula or blunt knife and examine the result microscopically. In a sore not yet epitheliomatous, the epithelium is still regular, squamous, flattened, the nuclei small and single. In an ulcer becoming epitheliomatous, the cells are no longer regular, but variable in shape and size, oval

caudate instead of square, with nuclei large and multiple. Not infrequently cell nests or fragments of cell nests may be found. (Mr. W. H. A. Jacobson, American Journal, Sept., p. 232.)

Cancer of the Tongue.—Permanent Cures by Operation.—Really permanent cures are, as yet, too few—ten per cent. of cases operated on according to Barker, or thirteen per cent. according to Butlin—to afford a satisfactory reply. The explanation of this is not altogether to the credit of our profession. Patients and we alike are too often both to blame. The gravity of the disease is overlooked, the time of the pre-cancerous stage is lost. Because tongue cancer is so often preceded by syphilis or local irritation, the practitioner diagnosticates the one or the other and suggests it as the essential part of the mischief. "Give drugs another chance"—e.g., potassium iodide, potassium chlorate, mercury, caustics. To these there are, in nearly every case, the strongest objections in the pre-cancerous stage. Time is lost, strength is lost and the patient is lulled and befooled, while all the time the vascularity and irritation around the ulcer are increased. Furthermore, the patient is in part responsible for the delay, as he very naturally dreads the operation, exaggerating its danger, painfulness, and the supposed inevitable loss of speech. These delays lead to "cultivation of cancer" and to miserable deaths. We shall never be able to combat successfully these causes of delay until (1) the importance and value of the pre-cancerous stage are recognised. (2) Getting cases of tongue cancer early, we are enabled to assure the patient that removal of one-half of the tongue will be sufficient, and that the other half can be safely and usefully spared to him. If ulceration has been persistent for longer than three months, permanent recovery is very doubtful. If it has persisted for over six months, if more than one-third of the tongue is invaded, if the floor of the mouth is involved, permanent recovery is well nigh certainly hopeless. It has been denied by some that leaving half the tongue is attended by any good result. From an experience of twenty-two cases of removal of the tongue, I am able to say positively that a patient, in whom the tongue has been split longitudinally and half removed, has, in the half which is left, a member which most usefully represents the tongue, and over which the patient has, in spite of what is said to the contrary, most serviceable control. In a patient from whom I removed half the tongue two and one-half years ago, the hypertrophy of the remaining half is very marked and the speech excellent. (Ibid, p. 233.)

Cancer of Tongue.—The Advantage of Operation where Permanent Cure is impossible.—Cases which are not operated upon die within eighteen months, many in twelve months. An operation wisely planned and well carried out often gives a gain of six or eight months. This is a gain not only of time, but also of

comfort. Death by glandular recurrence in the neck is less painful and noisome than death by mouth cancer. No one who has seen much of tongue cancer will have any difficulty in answering the question: which of the two is the more painful to the patient and distressing to those around him, tongue cancer, with its horrible fætor, profuse and foul salivation, its agonizing pain, its racking earache; or recurrence in the cervical glands, an alternative in which the patient is often able to work up to near the last, and, until toward the close is free from the agonizing tenderness, the stinking fætor, the dribbling of foul saliva and the slow starvation day by day of tongue cancer. When an operation is certainly attended with risk, the patient in facing it may be relieved by the assurance that a life prolonged in hideous misery and constant agony is worse than death following close upon an operation. (Ibid, p. 234.)

Carcinoma of Stomach.—*Resection.*—At the Congress of the German Surgical Society, held in Berlin, April, 1888, Herr Fischer reported a case of resection of the stomach for carcinoma. The patient was a woman, fifty-two years of age, who had a tumour near the umbilicus. The growth was movable and seemed to be in the small intestine, but when the abdomen was opened it was seen to be situated on the greater curvature of the stomach. The operation involved the removal of a very large part of the organ. It was successfully performed, and within one week the patient was able to take her nourishment by the mouth. She died five months later of perforating ulcer of the stomach. The autopsy showed such perfect union that the cicatrix could not be discovered. (Med. Record, May 12.)

Cascara Sagrada.—*Note on some of the Disadvantages of.*—Every practical physician is aware of the efficacy of cascara sagrada, the sacred bark, in the treatment of habitual constipation and the conditions incidental thereto. Although of comparatively recent introduction to this country, it has already obtained a secure footing in the British Pharmacopœia. Its disagreeably bitter taste and the occasional production of tormina, however, form a bar to its more general employment. The disagreeable taste is said to be referable to the action of a ferment on a glucoside principle contained in the bark, which is split up into glucose and a vegetable acid; these, in turn, undergoing further decomposition in process of manufacture. Parke, Davis and Co., of Detroit, who were the first to introduce Dr. J. H. Bundy's discovery to the general notice of the profession, have now by an improved method succeeded in preparing the drug without this fermentation having taken place, and have thus obtained a tasteless liquid extract—a point of considerable importance. This preparation of cascara they forward

under the name of "the formula for 1887," and my object in publishing the clinical records of the following cases is to show the advantages which it possesses over the ordinary liquid extract whilst losing nothing in therapeutic activity. I have merely to add, for the convenience of those who may be anxious to use the tasteless liquid extract where the other preparation is contraindicated, that it can be obtained from Burgoyne and Co., 16, Coleman street, London. (Mr. G. E. T. Greene, Practitioner, June, p. 435.)

Chronic Gastric Ulcer.—Gerhardt (*Münchener Med. Wochens.*, 1888) says: Injuries of the gastric mucous membrane heal rapidly. Round ulcer is a chronic ulcer, whose chief characteristic is its persistency, and there must, therefore, be some other cause for this persistency besides the loss of substance. This is usually sought in an excessive gastric secretion, or in the action of injurious food or medicines, and where these are not the agents certain micro-organisms are perhaps at fault. It is a common disease, and cicatrices are found in one-tenth of all autopsies made. Cicatrices are three times as common as open ulcers; recovery, therefore, occurs with relative frequency. Hematemesis is absent in the majority of cases, besides being a symptom of other affections also. The seat of the ulcer is in twenty per cent. of the cases in the space between the pylorus, the lesser curvature, and the posterior wall. It is not correct to say that the absence of tumour is one of the most important negative symptoms. Tumours are frequent, due to: 1, old callous ulcers, especially when situated in the anterior walls; 2, excessive thickening of the pyloric muscle, a very common cause; 3, masses of exudate lying on the gastric wall, rare; 4, the projection of other organs through a perforated ulcer. Hyperacidity is usually present, but there are cases in which no HCl is to be found; and the acid is sometimes seen in carcinoma. The duration may be from twenty-five to thirty years, and intermissions in the symptoms are frequently mistaken for recovery and relapse. Pain is rarely absent, and has the greatest diagnostic value when not situated at the xiphoid cartilage, and when dependent on the nature of the food, the time of eating, and the position of the body. Dilatation of the stomach indicates that the ulcer is at the pylorus; contraction, that it is at the cardia; intermittent rigors, that the spleen is involved; tenderness on pressure and absence of hemorrhage, that the anterior wall is affected; pain in the back and hemorrhage, that it is the posterior wall. A patient who abstains from food on account of pain, and thereby becomes emaciated, is probably suffering from an ulcer, and not from a carcinoma. The periodical weighing of the patient is very important for purposes of diagnosis. American Journal, June, p. 624.)

Chronic Painful Ulceration of the Tongue.—*A Cure in which Resorcin gave great relief.*—The patient is a married lady, and the affection was first noticed some fourteen years ago. Treatment of a mercurial character was unsuccessfully employed by various medical men who, from time to time, were consulted. In June, 1886, the affection was characterised by firm india-rubber-like nodules with extensive bases and by deep fissures occupying a considerable part of the dorsum and sides. There was also some ulceration on the dorsum, and the pain was very severe. Sir James Paget was consulted at this time, and he, fearing that the lesions would take on cancerous characters, advised that a slice should be taken off the affected part of the dorsum. This was done, considerable relief following, which, however, proved to be of a temporary character only, as shortly afterwards, in consequence, as the patient believes, of a cold caught on a mountain, the ulceration began to return, and all the old pain with it. The patient then fell into the hands of a homœopath, whose treatment, however, was of a negative kind. The tongue continuing to grow worse, and the patient having given up the homœopath and moved away from the neighbourhood of her former medical advisers, it was suggested to her some three months ago by letter that, before returning to undergo a further operation, she might try the effect of sprinkling a minute quantity of resorcin on the diseased surface. The very first application greatly relieved the pain, and in a few days the tongue, which had been much swollen, returned to its normal size. Now, though the fissures and ulcers are still present, they are described by the patient as looking much more healthy and as being almost painless, on which latter point we may certainly take her word, whatever doubt may attach to the description of the appearances. (Mr. T. Maxwell, Woolwich, Lancet, April 21.)

Colotomy.—*Technique of.*—The obvious disadvantages of colotomy, as usually performed, are cited by Maydl (*Centralblatt für Chirurg.*, 1888), as the consideration which led him to devise the operation which he describes. He opens the peritoneal cavity by Littre's incision, and draws a loop of intestine forward till its mesenteric attachment lies in the abdominal wound. Through a slit in the mesentery close to the gut is inserted a hard rubber cylinder wrapped in iodoform gauze— a goose-quill will answer, if hard rubber be not obtainable. This prevents the retraction of the intestinal flexure. By means of a row of sutures placed on each side of the prolapsed gut, including the serous and muscular coats, the two limbs of the flexure, in so far as they lie in the abdominal wound, are stitched together beneath the hard rubber support. If the prolapsed gut is to be opened immediately, it is stitched to the parietal peritoneum of the abdominal incision and the latter protected by iodoform

collodion. If the incision of the bowel is to be delayed, the latter is not stitched to the peritoneum but surrounded by iodoform gauze packed in beneath the rubber support, the operation being completed in four or six days. If the artificial anus is to be permanent a transverse opening, including one-third of the periphery of the bowel, is made by the thermo-cautery, drainage tubes are inserted into the two presenting lumina, and the intestine is carefully washed out. If all goes well the gut is entirely cut through in two or three weeks, the rubber support serving well as a base upon which this division can be effected. A few sutures will serve to secure the cut end to the skin. If the direction of the muscular fibres has been regarded in making the abdominal incision, the patient is provided with such a good sphincter that a large drainage tube is required to keep the opening patulous. Should only a temporary artificial anus be designed, a longitudinal opening must be made into the intestinal loop. When it is desired to close this opening the rubber support is taken away, the bowel retracted by the mesentery, and the opening spontaneously closed; or, if the cicatricial adhesions be too strong to allow of this, the bowel must be freed by the knife, sutured, and returned to its proper cavity.

Lauenstein (*loc. cit.*) accomplishes the same result as does Maydl, by suturing together first the skin and peritoneum of his abdominal incision, then drawing out a loop of intestine and closing his parietal wound by sutures passing through the mescolon of the prolapsed gut, which is thus fastened in the abdominal incision; next the serosa of each limb of the prolapsed loop is stitched through its entire circumference to the parietal peritoneum. (American Journal, Aug., p. 196.)

Diarrhœa of Children.—*Lactic Acid in.*—Dr. G. Hayem, more than a year ago, called attention to the remarkable utility of lactic acid in the diarrhœas of children. Recently, in a communication to the Academy of Medicine (*Revue de Thérap.*, Feb. 15), he has renewed his suggestion, and presented new evidence of the value of the remedy. He finds that better results are had from larger doses than he formerly advised. In the more severe cases he has administered a two per cent. solution up to twenty teaspoonfuls in the course of twenty-four hours. The formula employed by him is the following:—Lactic acid (pure), ℥ss; syrupi, ℥j; water, ℥iij. The strength of this is about one minim to the teaspoonful. The quantity given will vary with the age of the subject and the nature of the attack. M. Sevestre, one of the physicians to the Children's Hospital, confirms the statement of Hayem regarding the therapeutic power of the remedy in question, and he also finds that a considerable quantity is required to effect the best results. The latest experience demonstrates that a teaspoonful of the two

per cent. solution should be given every five minutes in the worst cases, and from this up to a teaspoonful an hour: the amount required varies with the conditions present. (American Journal, April, p. 395.)

Digestive Disturbances in Children.—*Salicylate of Bismuth.*—This preparation is said to combine the astringent properties of bismuth and the disinfecting worth of salicylate, and has been administered by Ehring to a great many children with digestive disturbances. It proved itself a most excellent remedy in gastro-intestinal catarrhs depending essentially upon abnormal fermentation, especially if combined with lavage of stomach and intestines. It was given in the following mixture:—Bismuthi salicylat., ℥j; glycerin., ʒss; aquæ, q. s. ut ft. ℥iv. One drachm every two hours, more or less according to age of child. Taken as a powder, it is apt to cause some gastric irritation; in one per cent. of cases a slight salicylate eruption appeared. Ehring thinks the remedy ought to be of use in cystitis and ammoniacal urine, since the urine after seventeen hours shows increased acidity and decomposes less readily. (American Journal, Sept., p. 286.)

Enemata for Children.—Dr. A. Jacobi (*Archiv. of Pediatrics*), writing on the general therapeutics of infancy and childhood, reminds us that the rectum of the young is straight, the sacrum but little concave, the sphincter ani feeble, and that the self-control gets developed but gradually. A rectal injection is either easily allowed to flow out or vehemently expelled; and therefore one expected to be retained must not irritate. The blandest and mildest is a solution of six or seven parts of chloride of sodium in a thousand parts of water. This may be made to serve as a vehicle of medicine, unless incompatible with the latter, which will be but rare. An enema that is to be retained must be tepid and small in quantity—half an ounce or little more or less—and carried up well into the rectum, for the immediate contact with the sphincter may produce its expulsion. Care must be taken to exclude air from the syringe, which, for small quantities, must be a well-fitting piston syringe, of hard rubber, with a long nozzle. This must be well oiled, and introduced, not straight, but with a gentle turn, so as to avoid folds in the anal mucous membrane (in the way a thermometer *ought* to be introduced). The nozzle must not be too thin, as it is liable to be caught; the smallest nozzles of fountain syringes are therefore in most cases improper; the larger size is more appropriate for any age. The injection must be made while the patient is lying on his side, not on his belly over the lap of the nurse, for in this position the space inside the narrow infantile pelvis is reduced to almost nothing. When medicines

are to be injected, the rectum ought to be empty, as it mostly is in infants. When it is not, an evacuating injection ought to precede the medicinal one by half an hour. It ought to be of the mildest possible nature, for any irritation of the rectum, from the local effect of an enema to a catarrhal or dysenteric process, reduces its faculty of absorption. The medicinal solution must not be saturated; indeed, very soluble medicaments only are to be selected for medicinal enemata. Nor must they be acid, or contain anything irritating. Alcoholic tinctures require relatively large quantities of water. Quinine salts must not be selected unless very soluble, such as the muriate, bromide, bisulphate; no acids must be used for the purpose of keeping them in solution. Salicylate of sodium and antipyrin exhibit their full power through the rectum, and permit of full doses. As a rule, however, the rectal doses are a little larger than those given by the mouth. (Practitioner, June, p. 459.)

Fæcal Fistula.—*The Method of Formation of a Fæcal Fistula after Reduction of Strangulated Bowel by Taxis.*—When a piece of bowel is reduced, it may lie for some time just within the femoral ring, to which it becomes rapidly adherent. In less than twenty-four hours peritoneum will become glued to peritoneum with such an amount of firmness as quite to resist the passage of fluids or semi-fluids. The gut, then, being reduced, when practically gangrenous, adheres to the inner side of the femoral ring, and then, giving way at a point opposite to it, discharges its contents through it. That such occurs is not very commonly known; but I have seen two cases in my own practice, where surgeons operated upon strangulated femoral herniæ to the complete relief of the symptoms of strangulation, where the patients went on quite comfortably for some days, and where after that time fæculent matter began to come down the wound, and a fæcal fistula resulted. (Mr. W. M. Banks, p. 349, and Liverpool Med.-Chir. Journal, July, p. 297.)

Gall-Stone Colic.—*Its Simulation of Intestinal Obstruction.—Its Occurrence without Jaundice.*—At the British Medical Association Meeting at Brighton, Dr. Ord gave a valuable address on some of the rarer symptoms produced by gall-stones. The diagnosis of hepatic (or cystic) colic is of much interest for surgeons, on account of the frequency with which the passage of a gall-stone simulates abdominal obstruction. I am not thinking of cases of real obstruction by the impaction of a gall-stone in the bowel, but of cases in which constipation and vomiting are due to a stone of small size impacted in the neck of the gall-bladder or its duct. I can fully support Dr. Ord's statement that attacks of gall-stone are often not attended by jaundice. I well remember many years ago meeting two physicians, together with the

family surgeon, at the bedside of a gentleman who was supposed to be the subject of acute internal strangulation. There had been much vomiting, and forty-eight hours constipation. The way in which the pain had begun, and the patient's distinct reference of it to the region of the gall-bladder, with other symptoms, made me think that it must be a case of gall-stone. On expressing that opinion I was met by the rejoinder that there was no jaundice. The discussion was vigorous, and the family surgeon, taking up the matter warmly, had the motions carefully strained, with the result that three days afterwards a gall-stone as big as a horse-bean came away. Dr. Ord states that gall-stones are often present, and may even pass into the bowel, without there ever having been present any of the symptoms usually supposed to indicate them. If by this statement is meant only the absence of severe attacks of colic with vomiting and jaundice, then I can quite agree with it. I believe, however, that almost always minor attacks of pain, more or less sudden, such as are often called "spasm of the stomach," have been present. It is difficult to accept the statement that gall-stones may leave their location and escape by the bowel, there having been from first to last no symptoms of their presence. Hepatic colic is a far more common event than it is generally supposed to be, and many cases escape recognition because there is a general belief that jaundice ought to be present. We are indebted to Dr. Ord for showing that this symptom may be wholly absent, even in severe cases and where the stone is large. With Dr. Ord's second proposition I can also fully agree. It is that gall-stones, far too big to pass through the common duct, and which can, therefore, only get into the bowel by the formation of an ulcer of communication, do escape by that process without producing any very severe symptoms, either general or local. I have several times known stones of very large size, big enough to quite plug the bowel for a time, to be got rid of by patients who had never been seriously ill. I do not say that they had never had tenderness over the part, nor that slight paroxysms had been wholly absent, but these had been so unimportant as to attract little notice. In cases in which in reference to proposed operative measures it is necessary for the surgeon to diagnose as to gall-stones, it is of great importance to take cognisance of these slight attacks of colic. They may have been very transitory, but if they have been present they count for much in helping us to an opinion. The use of anæsthetics to full insensibility, kept up for a long time, and both preceded and followed by opiates, is, I suppose, the best treatment for all forms of gall-stone colic. It does not matter whether the stone is impacted in the common duct or in the bowel, we can scarcely do better than prevent spasm and favour relaxation of the parts

concerned. By these measures I have, in several cases in which I had been called in with a view to operation, succeeded in quite removing symptoms which were very urgent. It is of interest to know that attacks referred to stomach disorder from indigestible food are often really hepatic colic due to the presence of gall-stones. By the patient I have no doubt that this mistake is constantly made, and the surgeon must be cautious of taking the lead suggested. A gentleman was liable to attacks of pain which he referred exactly to the site of the gall-bladder, but which, he said, were produced by certain articles of food, such as carrots, broad beans, &c. The pain, he said, was often terribly severe, and might last a whole night, and even on one recent occasion for three days. It always left a sense of soreness over the whole region. He had never had jaundice. I told him that, in spite of his impressions as to the influence of food, I had no doubt that his attacks were due to gall-stones. He corroborated my diagnosis by at once telling me that his father and a sister were known to have voided them. (Mr. Jonathan Hutchinson, Emeritus Professor of Surgery at the London Hospital, British Medical Journal, June 30, p. 1374.)

Habitual Constipation.—*Glycerine as a Laxative Enema.*—All observations agree as to the satisfactory and even brilliant results of this use of glycerine. First, Anacker (*Deutsch. Med. Wochenschr.*, 1887) having discovered that "das Purgativ Oidtmann," a proprietary medicine of much renown, and likewise given by enema in quantities of from xx to xxx ♏, was mostly glycerine, tried this substance alone. With enemas of fifty drops his success was complete and unvarying. After him, Varnossy (*Wien. Med. Presse*, 1887, and *Ther. Monatshefte*, March, 1888) made trial of it in 150 cases of all ages, with "astonishing" results, using ♏xxx. Next, Seifert (*Münch. Med. Wochenschr.*, 1888) reports having always seen the best results; he uses ℥j on an average. In smaller quantities he recommends it especially for children. Finally, Boas (*Deutsche Med. Wochenschr.*, June 7, 1888) has had the same gratifying success with suppositories of glycerine, which, from being readily handled, etc., have advantages over the syringe and injection, if equally efficient. Boas uses some special form of hollow suppository in which ♏ xv are placed. The dejection follows in fifteen to twenty minutes. Thus these observers agree in recording remarkable success. Glycerine seems to act *cito, tuto et jucunde* and to have added to our resources. No one has anything to record against it except that it cannot be used when there is ulceration. Neither the injection nor the movement causes pain, and, according to Seifert, no tolerance is established. The movement should take place within half an hour. (American Journal of Medical Science, Aug., p. 175.)

Icterus Gravis.—*A Case of Acute Cirrhosis of the Liver.*—Koerner (*Deutsch. Archiv*, 1888) reports an interesting case, in which, after a sudden onset with headache, vomiting and weakness without known cause, icterus developed and was attended by bleeding from the nose and gums, headache, extreme restlessness, eructations, bad taste in the mouth, icteric urine, general pain and some tendency to stupor. The liver was very tender to pressure and somewhat swollen. Later the stupor deepened, the swelling of the liver grew less, the urine contained leucin and tyrosin, the temperature arose suddenly to over 104°, and the patient died with the symptoms of acute pulmonary œdema after an illness of twelve days. The autopsy showed the liver to be of nearly normal size, and, for the most part, of an ochre-yellow colour. Under the microscope there were found the evidences of an acute inflammation of the connective tissue of the organ, with compression and atrophy of the liver cells, but without any signs of the primary degeneration of the glandular structure of acute yellow atrophy. (American Journal, Sept., p. 300.)

Kefir.—*An Imitation of.*—A very good and agreeable imitation of the Tartar beverage known as "kefir," which is, like koumiss, used extensively in phthisis and other wasting diseases, may be made by the following simple method described by Dr. Levy in a German chemical journal: Freshly prepared sour milk is briskly shaken up and then placed in a soda-water bottle, together with two per cent. of syrup. The mixture is well corked and kept in a warm place for three or four days. At the end of that time a most agreeable effervescing beverage is obtained by uncorking the bottle. It contains some two per cent. of alcohol. If required for use more speedily, a few drops of lemon juice should be added to the syrup. (Lancet, April 28, 1888.)

Malignant Disease of Peritoneum.—*Diagnostic Appearances in the Ascitic Fluid of.*—At the New York Clinical Society on May 25, 1888, Dr. H. C. Coe demonstrated the presence of the sprouting cell-groups of Foulis in a drop of ascitic fluid withdrawn the day previous from the abdomen of a patient with undoubted secondary cancer of the peritoneum, who had been under observation for some time at the Cancer Hospital. His attention had been directed to these cells by Dr. Welch seven years before, and since then he had sought for them in every specimen of ascitic fluid submitted to him. Although he had found them but once in cases of cancer of the liver, even where the omentum had been affected, he could recall several cases in which the presence of numerous cell-groups had led him to diagnosticate malignant disease of the ovaries and peritoneum, and in which diagnosis had been fully confirmed by a

subsequent exploratory incision or autopsy. He thought that every pathologist who had given this question careful consideration must disagree with Tait, who, in the last edition of his work on *Diseases of the Ovaries*, had said that he placed no reliance on the presence or absence of these cells in fluid removed by tapping. At the same time that author was correct in affirming that these elements were not always found. The speaker believed that, when they were found in the free fluid, they denoted the presence of an exuberant malignant growth, either carcinoma or sarcoma; they might also indicate the outgrowth of papillomatous material through the wall of an ovarian cyst, with extension of the disease to the peritoneum. He had always deprecated a resort to exploratory incision in cases in which advanced malignant disease was strongly suspected, since, so far as his own observation extended, little additional information was gained, and the patient frequently either succumbed to the shock of the operation, or, if she recovered from it, grew rapidly worse. He thought that a careful examination of the fluid withdrawn with an aspirating-needle would often render the diagnosis so clear that the patient would be spared such operative interference. (New York Medical Journal, July 28, p. 103.)

Nervous Dyspepsia.—*Its Diagnosis.*—The diagnosis of nervous dyspepsia can generally be made from symptoms without the use of the tube. The female sex, the disproportion between the symptoms produced and the cause when the most easily digestible food is given in small quantity, the general symptoms—such as globus, fear of impending death, sleeplessness, headache and neuralgia, and the presence of any known cause, either physical or mental, such as grief, shock, ovarian or uterine mischief, &c., help to make the thing clear. When gastralgia and vomiting are present the difficulty of diagnosis is, however, sometimes so great that even such an experienced physician as Leube confesses that he has had at first to treat the case as one of ulcer, and when no relief was obtained in that way, to alter his line of treatment to tonics and abundance of nutritious food. There is a general agreement now, however, amongst those who pay special attention to the subject, that, as Leube first pointed out, the stomach in nervous dyspepsia is always free from food five hours after a meal. When that is found on frequent examination to be the case whilst the filtrate of the contents obtained during digestion gives an acidity approaching the normal, and digestion is found to be in normal progress, it becomes evident that the condition is one affecting the gastric nerves and general nervous system. When vomiting is present, and the symptoms simulate ulcer, some hesitation may be felt about introducing the tube. The observations of Riegel, if they be

confirmed, concerning the presence of hyperacidity in gastric ulcer, may afford us some assistance. He says, *Deutsche Med. Wochenschrift*, December 30th, 1886 (see Medical Chronicle, June, 1887), that in fifteen cases of gastric ulcer he found in each, and at every examination, an abnormally high acidity, amounting generally to 0·3 to 0·4 per cent., and in some cases to 0·5 and 0·6 per cent. If, therefore, the acidity of the matter vomited some time after taking food be found to be below the normal, ulcer is improbable. The statements of patients about the sourness or taste of the vomited matters are very unreliable. I have found them quite neutral when great acidity was complained of. The diagnosis from chronic gastritis can only be made with certainty by the stomach tube. Jaworski has shown that a great variety of nervous symptoms sometimes arise from retention of food in the stomach. He says the absurdity of diagnosing a case as one of nervous dyspepsia, without the use of the tube, is as great as that of an ophthalmologist who would draw conclusions about the condition of the retina without using the ophthalmoscope. The diagnostic symptom sometimes laid great stress upon, viz., that of a feeling of sinking in the epigastrium and pain relieved by taking food, is certainly unreliable. This was a prominent symptom in a case of mine proved to be gastric ulcer by the occurrence of copious bloody vomiting, and I have also observed it several times in cases of hyperacidity and hypersecretion. The origin of the great quantities of gas present in some cases of nervous dyspepsia is still undetermined. It is very probable that in all cases of nervous dyspepsia the mucous membrane and secreting apparatus have undergone some morbid changes at present beyond our ken, but the main structures implicated are the gastric nerves. The general nervous system is weak, hypersensitive, and mobile, owing usually to depressing causes, such as prolonged overwork; to the habit of neglecting regular meals—which is a very common one among females—or the resort to innutritious and stimulating food and drinks, instead of good meals containing a sufficiency of nutriment; to shock, grief, or worry and excitement of any kind. (Dr. McNaught, Medical Chronicle, April, p. 23.)

Perforating Appendicitis.—*Resection of Appendix in.*—At a recent meeting of the Imperial Society of Physicians, Vienna, Dr. Brenner, assistant to Prof. von Dittel, showed a patient, aged 19, who had been admitted into Prof. von Dittel's clinic in March last, with symptoms of severe intestinal obstruction. The history of the case and the intense pain in the cæcal region led them to conclude, with a certain degree of probability, that they had to deal with perityphlitis and consecutive suppurating peritonitis. Laparotomy was performed on the day of admission. After opening the abdomen, a great quantity of pus escaped;

the intestines were washed with a solution of salicylic acid; and on close examination it was found that there was an abscess in the region of the cæcum around the vermiform appendix, which was perforated. The vermiform appendix was ligatured and removed. The part of the cæcum which had become affected by the suppurating process was drawn forwards and fixed to the abdominal wound by means of sutures, as resection of the intestine could not be done, owing to the collapsed state of the patient during the operation. The abdominal wound was closed, and healing took place by first intention. Three other cases of suppurating peritonitis following perityphlitis were treated by laparotomy, but all ended fatally. Dr. Brenner remarked that the recent advance in the surgical treatment of these cases consisted in the fact that operation was resorted to at an early date, and that the affected part of the intestine was removed from the abdominal cavity. This was the first case of healing after resection of the vermiform appendix when general peritonitis was already present. (British Medical Journal, June 9, p. 1245.)

Prolapse of the Rectum.—*Operative Treatment of.*—Mikulicz (*Deutsch. Gesellch. für Chirurg.*) advises circular resection as the best means of treating prolapse of the rectum, or prolapsed invagination of the colon. In one case two and a half feet of the prolapsed colon were resected, the patient making a good recovery. The patient is placed in the lithotomy position. Two strong threads are passed through the extremity of the prolapse and looped, serving for fixation. Irrigation through the operation with antiseptic solution. Transverse incision of the anterior portion of the intussuscipiens, going carefully through its thickness and checking all bleeding. When the serosa is cut through, exposing the serosa of the intussusceptum, the two serous membranes are stitched together by a circle of fine sutures, thus closing all communication with the peritoneal cavity. Just beyond the sutures the anterior part of the intussusceptum is also cut through. The cut ends of the gut are now sutured to each other, to the entire extent of the incision, by silk threads, including all the coats, the threads being left long that they may serve to steady the bowel for the completion of the operation. Finally, the remaining periphery of the two intestinal lumina is secured, the numerous mesenteric vessels tied and the union of the gut completed by the deep sutures. The line of suture is dusted with iodoform. The long ends of the thread cut away, and what remains of the prolapse is replaced within the anus. No drainage tube, no bandage. Opium for eight days. (American Jour., Aug.)

Summer Diarrhœa of Infants.—*Use of Water in.*—The administration of water is very useful, for often the child frets to be nursed frequently because it is thirsty, and thereby gets

too much food and overtaxes its already greatly irritated stomach; whereas, if water is given, the system obtains what it really needs and nothing more; its systematic administration, therefore, should always be directed in cases of choleraic diarrhœa. (Dr. A. V. Meigs, p. 234.)

Summer Diarrhœa of Infants.—A Milk Food for.—One quart of milk is placed in a vessel, a tall narrow pitcher is best, and after standing for three hours the upper pint is slowly poured off. This contains the greater part of the fat (cream), and when the child is to be fed there should be mixed together three ounces of this cream, two ounces of lime water, and three ounces of sugar water, which must be made in the proportion of eighteen drachms of milk sugar to a pint of water. This makes eight ounces of food, which, of course, is much too large an amount for a young infant or one that is ill. If, therefore, the infant is young, only two to four ounces will be needed at each feeding, and only that quantity should be prepared, the same proportions, however, being observed and the measure used a tablespoon or dessertspoon, as the case may be. The directions given are those for the feeding of a healthy infant between two weeks and six to nine months of age, and are mentioned only to serve as a basis for what should be given those suffering with summer diarrhœa. (Dr. A. V. Meigs, p. 235.)

Tape-Worm.—*Formula for Treatment of.*—(*L'Union Médicale.*) Oil of male fern may be conveniently administered in the following combination: Ethereal oil of male fern, ♏45; tinct. vanillæ, ♏45; syrup rubi., ʒ 6¼; gum. acac. pulv., gr. 30; aquæ destill., ʒ 6¼. To be taken at one dose, in an equal quantity of milk. Castor oil should be taken two hours afterwards. (Philadelphia Medical News, June 23, p. 695.)

Tubercular Peritonitis. — *Laparotomy.* — Kümmel remarks (*Archiv für Klin. Chirurgie*) that whereas, not very long ago, tuberculous peritonitis was only noticed by accident, as, for example, when abdominal section was performed on account of supposed ovarian disease or other abnormal abdominal conditions, yet now it is correctly diagnosticated and recognized as a local disease, as in tuberculosis of bones and joints. It is also, like them, treated by operative measures. He analyses forty cases in which this condition was found, the patients ranging in age from four to fifty-six years, but the majority between fifteen and twenty. Most of the operations were based on false diagnoses. All but two were women. In the two males the condition was noticed incidentally while operating for ileus. Only in a few instances was the tuberculosis diagnosticated and the operation undertaken for its relief. As a rule, these cases all appeared to be cystic and consisted of collections of liquid

between lymph bands, more or less organized. In a smaller proportion the tuberculosis was general. In no cases did the operation cause a hastening of the process, but, on the contrary, it always seemed to have a distinct ameliorating and retarding influence. He concludes that laparotomy may be regarded as a curative as well as a palliative measure in the treatment of abdominal tuberculosis. (American Journal, Aug., p. 190.)

Tubercular Peritonitis. — Laparotomy. — Of fifty-four cases of laparotomy in tubercular peritonitis collected by Trzebicky (*Wiener Medizin. Wochenschr.*), four died from the immediate consequences of the operation, while in a fifth, death occurred, soon after the operation, from acute miliary tuberculosis, though the fluid had not reaccumulated. One case died, in four months, of general tuberculosis, without the peritonitis disappearing. Cures resulted in forty cases, though, here and there, advance of pulmonary tuberculosis was reported. The majority of cases were in females, which may find its explanation in the fact that most were operated upon under an error in the diagnosis of ovarian cyst. The statistics are yet too meagre, the correctness of the diagnosis not entirely above doubt, and the period of observation after operation not long enough ; but, in view of the results, there is no longer any justification for expectant treatment. Even though, in some cases, recovery was not permanent, the fluid did not reaccumulate, and the patients were relieved of their distress. Spontaneous recovery from tubercular peritonitis is exceptional; and operative interference is indicated the more, as it would seem that, in many cases, tuberculosis of the peritoneum is a primary affection, and the source of general infection. As all other therapeutical measures are futile in such cases, and laparotomy, under antiseptic principles, may be considered free from danger, the operation is certainly indicated. It consists in a free incision, and thorough evacuation of the fluid. (Philadelphia Medical News, July 14, p. 46.)

Tubercular Peritonitis.—Laparotomy.—E. van de Warker records the following very instructive case (*Centralb. f. Chir.*, 1888). A woman of 28 began to suffer from abdominal dropsy without discoverable cause. As she was gradually getting worse an exploratory incision was proposed. No sooner was the abdominal cavity opened than it became evident that the case was one of tuberculous peritonitis, with abundance of enlarged glands and miliary tubercles studding the peritoneum. The peritoneal cavity was thoroughly emptied and washed out with a five per cent. sublimate solution. Complete recovery took place, which remained perfect after the lapse of a year. A remarkable case is described by Dr. J. W. Elliott, in the *Boston Med. and Surg. Journal*, of tuberculosis of the peritoneum cured by the evacua-

tion of the abdominal fluid by laparotomy. The patient was a delicate-looking red-haired girl of 14 years. An enlargement of the abdomen had been noticed for about a year, and was steadily increasing. The child had lost health and strength, but complained of nothing else. The abdomen was greatly and uniformly distended. Fluctuation was evident, and hard masses were to be felt at various points. The left flank was dull; the right was tympanitic; there was dulness over the whole of the rest of the abdomen; the percussion note did not change on change of position. On Dec. 12, 1887, Dr. Elliott opened the abdomen and evacuated two pailfuls of ascitic fluid. The peritoneum was thickened and adherent to the subperitoneal fat. The omentum, intestines, and all the organs were studded with small, hard, grayish-white lumps, which felt like shot. The intestines were drawn up by the diseased mesentery, and held in the upper abdomen, so that they did not present at the opening, nor did they fall into the pelvis after the fluid was evacuated. The omentum was rolled up and contracted into a long mass of tissue of the size and shape of a large sausage. The ovaries and tubes were not enlarged, but were studded like the rest of the organs with tubercles. A small amount of bloody fluid was left in the pelvis, as it seemed to form about as fast as it could be sponged out; and the abdomen was closed without drainage. The operation lasted twenty minutes. Recovery was uninterrupted, the wound healing by first intention. The patient went home at the end of three weeks; and four months after the operation she had grown fat and rosy, and said that she was perfectly well. The abdomen was flat and soft, all the hard masses had disappeared, and there was no ascitic fluid present. A tubercle-bacillus was found in one of the sections of the hardened fragments. (Practitioner, Aug., p. 129.)

Ulcer of the Stomach.—*Treatment of.*—Gerhardt (*Berlin. Klin. Wochens.*) writes that dietetic treatment is the basis of all proper treatment in these cases; milk diet is most suitable for recent cases; peptones should be given preferably by enemata, as they often irritate the stomach. In hemorrhage and peritonitis enemata only should be given. Morphine should be used as little as possible. Chloride of iron should be prescribed when possible; the weak alkaline waters should be used (Carlsbad) except in very anæmic patients. Washing out the stomach should only be employed in recent cases, as the weakened stomach walls may rupture in old ulcers. In persistent pain in an empty stomach nitrate of silver is indicated. Condurango is an excellent tonic in old ulcers of the stomach. A gastric ulcer may be considered healed when the patient gains in weight, when gastric pains cease, and when no sensitiveness on pressure exists over the epigastrium. (Medical News, July 14, p. 46.)

Washing-out the Stomach in the Diseases of the Stomach and Intestines in Infants.—*Indications for.*—Prof. Ebstein was the first to treat acute affections of the stomach and intestines in young babies by washing out the stomach. This practice he began in the year 1880, and in 1883 he published his results, which were highly satisfactory. Since then he has continued the practice with increasing confidence and success, and has now performed this little operation upwards of 1000 times without disaster, and usually with the greatest benefit. He treats attacks of vomiting and diarrhœa in infants of a few days or weeks old by first washing out of the stomach its entire contents, which are usually found to be in an offensive state of decomposition; and this alone he has found to be of immense benefit. The method of carrying out this treatment was fully described in his former paper, and is not given in the one under notice, but he says the difficulties are greatly overrated. It is sometimes attended at first with some gasping and choking and temporary stoppage of the breathing, but these troubles soon pass off. In only a very few cases was he obliged to stop the proceedings on account of continuous crying or choking, which prevented the fluid from reaching the stomach. The cases in which this practice is useful are more numerous in children than in adults, inasmuch as the distended stomachs which occur in rickets are so common in early life. Indeed, he considers rickets to be due to a congenital anomaly of the constitution, as does Kassowitz. Besides acute gastro-intestinal catarrh, he employs it also in various forms of dyspepsia in childhood as a preliminary to an improved and rational dietary. After its use in the acute cases, he gives, for twenty-four to forty-eight hours before using any other food, or even allowing the child to be put to the breast, small quantities of albuminized water, i.e., one part of water to two parts of albumen. This is almost always well borne, and when the sickness has ceased, begins more regular food. In the discussion that followed the reading of the paper, several of the leading physicians for children's diseases in Germany stated that they had tried the practice largely, and were very well satisfied with it. (Edinburgh Med. Jour., June, p. 1142.)

AFFECTIONS OF THE URINARY AND GENERATIVE SYSTEMS.

Albuminuria.—*Fuchsin in.*—In the *Gaz. Heb. de Méd. et de Chr.*, Dr. Reiss writes of twenty cases of nephritis which he treated with 5 milligrammes to 1 centigramme ($\frac{1}{10}$ to $\frac{1}{6}$ grain) of fuchsin. In two cases the effects were truly wonderful; the first was a case of scarlatinous nephritis in a child, aged 4. A complete elimination of albumen resulted in forty days. The second was

a case of rheumatic nephritis, and in this case a cure was effected in three weeks. The other cases, among which were several cases of chronic nephritis, were all benefited greatly by the use of the drug. Dr. Reiss considers the proper dose to be from 1 to 5 milligrammes ($\frac{1}{64}$ to $\frac{1}{15}$ grain) daily, and in special cases the dose may be increased to 10 or 12 milligrammes ($\frac{1}{6}$ or $\frac{1}{5}$ grain). A red coloration of the urine was noticed, but no cerebral, nervous, or digestive troubles were ever observed to follow the use of the drug. (Edinburgh Med. Journal, May, p. 1046.)

Cystitis.—*Saccharin in.*—For the last three years I have been asked, from time to time, to see a lady, nearly eighty years of age, who is quite confined to bed in consequence of chronic disease of the bladder, which gives rise to frequent and painful calls to pass water. The urine always threw down a copious purulent sediment, and except when decomposition was prevented by treatment, was always ammoniacal. The lady has many times passed, with great suffering, phosphatic calculi, and, I have no doubt, many such exist in the bladder, but she has always refused to permit any surgical interference beyond the occasional introduction of a soft catheter, and the washing out of the bladder by a lady who acts as her nurse. Quinine and boric acid, when taken in fair doses, always purified the urine; but about three months ago her stomach became so irritable that these drugs could not be borne, and the washing out of the bladder by a weak warm sublimate solution could no longer be practised, as the passage of the catheter had become exquisitely painful. The consequence was that the urine became so offensive that the odour met one on the stairs, and the patient's attendants had often to leave the room to avoid being sick. In this difficulty it occurred to me to try saccharin. I directed six of the tabloids to be used daily. In three or four days the urine was no longer offensive. The patient has continued their use ever since, and the urine has not again become ammoniacal, though there is little, if any, diminution in the quantity of contained pus. (Dr. James Little, p. 249.)

Diabetes Mellitus.—Professor Seegen's paper, "On Diabetes Mellitus in regard to recently acquired knowledge regarding Sugar-formation in Animals," is to be found in the *Zeitschrift für Klin. Medicin.*, Bd., xiii. The chief results of his investigations are formulated in the following theses:—1. The formation of sugar is a normal process, going on in the liver uninterruptedly. 2. The daily amount of sugar formed in the liver is very considerable. 3. This sugar is continually "converted" in the body; but where and in what way this occurs has not hitherto been explained. 4. Sugar or carbohydrates taken as nourishment do not participate in the formation

of sugar within the liver. 5. Albumen and fat are the materials from which the liver forms sugar. 6. The formation of glycogen, in contrast to liver-sugar, is intimately related to the kind of nourishment taken, and is greatest when cane-sugar is taken. How do these facts agree with those derived from clinical observation of diabetes mellitus? The latter occurs in two forms; in the first of these (the light form), the patients are usually well, nourished, belong to the middle period of live, and voracity, thirst, and polyuria are only seldom excessive; in the second, or severe, form the patients are usually young, lose flesh rapidly, and have great voracity and thirst, with an excessive amount of urine. The main distinction between these two forms lies in this, that patients of the first class only excrete sugar when they take sugar or carbohydrates in their food; the symptoms of diabetes cease when these are discontinued. In the second class of patients, the sugar excretion is scarcely influenced by the avoidance of carbo-hydrates in the food. Seegen is of opinion that these two different forms represent two distinct pathological processes. In the first, the excreted sugar is derived undoubtedly from the sugar ingested, and the diabetes must be regarded as the result of incapacity of the liver cells to dispose of the carbohydrates in the normal manner. In the second form, it must be assumed that the normally formed liver-sugar is excreted. The whole body, or more or less of its elements, has not the capacity to "convert" the sugar conveyed in the blood; hence the graver prognosis in this form than in the other. The ultimate cause of diabetes is still unknown, but the author is of opinion that nervous derangements very frequently underlie this disease. (British Medical Journal, May 5, p. 970.)

Diabetes.—Cutaneous Lesions of the Genitals in.—Pruritus of the genitals in both sexes is so often due to diabetes mellitus that A. Fournier, Paris, lays down the rule in all cases of this affection to examine the urine; he adduces several cases in which treatment of the constitutional disease alone produced any alleviation of this distressing affection. But besides causing pruritus and eczema (with or without the presence of cryptogamic parasites), diabetes leads occasionally to gangrenous ulceration of the genitals. A man came to the St. Louis hospital with sloughing of the glans penis; venereal contagion was excluded, and his urine was found to be full of sugar. Anti-diabetic treatment with iodoform and the continuous immersion of the genitals soon led to marked improvement. A similar case is given in a man aged 46, in which the glans rapidly passed into gangrene without suppuration, and another of gangrene of the scrotum (both in diabetics) quoted from Gubler. The well known prevalence of phimosis and balano-posthitis amongst diabetic patients is noticed, and M. Fournier points out the

grave risk attending circumcision. He advises strict attention to cleanliness, the use of some drying powder, and frequent injection beneath the prepuce of an alkaline lotion (bicarbonate of soda or borax). Simple balano-posthitis due to diabetes is sometimes mistaken for gonorrhœa, much to the detriment of the patient, and the liability to confound diabetic gangrene of the genitals with phagedænic chancres, &c., is well pointed out in this interesting review of what M. Fournier terms the "diabetides." (Annals of Surgery, Jan., p. 61.)

Diabetes in Fat Persons.—The occurrence of transient glycosuria in fat persons is a matter of common observation among those who systematically examine all specimens of urine for the presence of glucose, and in such individuals the symptom is not usually looked upon as one of grave significance. But a more careful examination of statistics seems to show that this lipogenic glycosuria is not infrequently followed by a true diabetes. Wisch (*Berliner klinische Wochenschrift*, 1887, No. 46) has made a careful investigation of this question with interesting results. In more than one-half of the cases of marked obesity of hereditary origin which came under his notice, diabetes developed after varying periods of intermittent glycosuria. The striking association of lipomatosis with diabetes is illustrated by three genealogies, each one going back three generations. The frequent association, too, of gout with lipogenic diabetes—familiar to all who see much of either disease—is dwelt upon. Regarding the pathogenic relation of diabetes to obesity, Wisch looks upon the diminished power of the fat-infiltrated muscle cells to convert sugar into glycogen as the cause of the diabetes. Stated broadly, his view is that there exists a congenital abnormality of the metabolic function of the cells which prevents their disposing, by combustion, of the fat within them, and that the resulting accumulation of fat leads secondarily to an inability to dispose properly of the glucose. (American Journal, June, p. 625.)

Diabetes.—Albuminuria in.—1. Albuminuria occurring in diabetes has the same import as in ordinary cases. A trace of albumin, appearing transiently or intermittently (when proved by exclusion to be of renal origin), and seldom or never associated with casts, may be regarded as due to irritation of the kidneys from the glycosuria. The immediate prognosis is good; but renal changes may subsequently result. 3. The occurrence of persistent albuminuria and numerous casts in a case of diabetes of long standing is of grave import, as pointing to the existence of chronic nephritis; if acetone and diacetic acid are also present, the patient may die in coma at any time. 4. Examination of the urine furnishes complete evidence of the patient's danger, even when the general condition is not such as to excite

apprehension. (Dr. H. C. Coe, New York Medical Journal, July 28, p. 90.)

Diabetes.—Dietetic Treatment of. — Cless (*Deutsche medizin. Wochenschr.*, 1887) reports 56 cases of diabetes mellitus at the medical clinic at Tubingen, subjected with the best results to a purely dietetic treatment. In 4, on account of the poor general condition, a stringent diet could not be enforced; 3 were at the clinic but for a brief period; of the remaining 49, after the withdrawal of carbohydrates, sugar disappeared from the urine in 20, 2 were completely cured, and 5 almost so, in that they could take considerable amounts of carbohydrates without sugar occurring in the urine; 13 had no sugar in the urine, at least on abstinence from carbohydrates; and in the remaining 29 the amount of sugar, and in most in very decided measure, was diminished. The diet, with slight modifications, was the usual one. It is to be noted that not every trace of carbohydrates was excluded, but the amount taken in 24 hours did not exceed 150 to 300 grains. The diet was almost exceptionally well borne; most gained in weight, and the general condition improved, sometimes notwithstanding other complications. The tentative administration of iodoform, salicylic acid and opium produced no noticeable effect. (Medical News, Sept., p. 239.)

Floating Kidney. — *Treatment.* — Dr. Paul Niehaus reports (*Centralblatt für Chirurgie*, March 24, 1888) a case of floating kidney with all the usual troublesome symptoms present in marked degree. The patient was desirous of extirpation, but it was resolved to try an apparatus resembling a double truss with a vertical arm fastened about the inner third of Poupart's ligament to the horizontal band on the affected side, and carrying a pad which was applied accurately over the region beneath the costal border where the tumour appeared. The apparatus was applied while the patient was recumbent, and was removed only at night when she was in the same position. There was an immediate disappearance of the pain, indigestion, constipation, etc., and the patient was able to do housework with entire comfort. A cut of the apparatus is given.

Dr. D. W. Wilcox reports (Annals of Surgery, March, 1888) a case of movable kidney in a woman, aged 24, who, while lifting heavily, felt something "give way in her back." She soon after detected an abdominal tumour a little to the right of and on a level with the umbilicus. She had heavy dragging pains and was much disturbed. Nephrorrhaphy was performed in the usual manner, except that the sutures seem to have been placed only in the perirenal fat and external to the capsule. The recovery was uncomplicated and the patient much relieved.—(American Journal, May, p. 523.)

HYDROCELE.—*Cocaine in the Surgical treatment of.*—To diminish the pain caused by the injection of iodine, M. Alezais (*Rev. Gén. de Clin. et de Thérap.*) proposes the employment of cocaine as a local anæsthetic. The tunica vaginalis testis is punctured and its serous contents evacuated. An injection of a solution of cocaine, two and a half grains to the ounce of water, is then made into the cavity and permitted to remain a few minutes. This is followed by the injection of the ordinary solution of iodine, which causes no more pain than that of the contact of the fluid with the wall of the cavity. By the employment of this modification of the classical treatment of hydrocele, it becomes possible to substitute the pure tincture for the weak solution of iodine, at the same time increasing the dose of cocaine. (Medical News, Aug. 14, p. 160.)

INCONTINENCE OF URINE.—A study of the etiology of this condition is essential to its treatment. The reflex centre for micturition lies in the lumbar spinal cord, and the sensation of a full bladder is the ordinary incentive to the reflex act. In childhood, owing to the highly sensitive state of the nervous system, various peripheral irritations excite the ureter and cause involuntary micturition. This is most common during sleep, as then the centre for volition is least active, though it may also occur during the day. The disorder is very common, upwards of twenty per cent. of all children brought to the out-patient department of the Boston Hospital for Children having suffered from it at some time or another. The causes are reflex, paralytic, or mal-formation. Of the reflex causes the chief are excessive quantity of urine; irritant quality of urine—i.e., either excessive acidity or excess of phosphates; calculus; hypersensitiveness of the generative organs, principally due to phimosis; anal irritation from worms, &c.; psychical causes; increased irritability of bladder. The treatment in most of the cases is obvious; separation of preputial adhesions, and if necessary, circumcision, cures many cases. The only drug of great service is belladonna in increasing doses and long continued; all mechanical constrictions of the parts are bad. (C. W. Townsend, M.D., in Arch. of Pœdiat., Dec., 1887. Edinburgh Med. Journal, June, p. 1143.)

JAVA TEA AS A DIURETIC.—Dr. Frochard recommends, in the *Gazette des Hôpitaux* of March 1st, a powerful diuretic, *Orthosyphon stamineus*, in the form of Java tea, in treating gravel and arthritis. He records the following cases. 1. H., aged 60, had passed gravel in his urine for a year. An infusion of Java tea (five grammes to the litre) was prescribed daily. The urine gradually became clear and abundant. 2. F., aged 52, for six months had suffered every three weeks from nephritic colic, followed by the expulsion of large calculi. Java tea was pre-

scribed in the same way as in Case 1. In the next two months he had only one attack, and during the five months which had since elapsed he had not suffered at all. 3. M., aged 46, had suffered since 1883 from ascites due to cirrhosis of the liver. For a month he took Java tea, at first five grammes, and then ten grammes in a litre of water. The abdomen diminished in size several centimètres weekly. The drug is perfectly harmless. Dr. Frochard has only used it in the form of Java tea, and pills obtained direct from the importer, M. Périnelle. (Brit. Med. Journal, May 5, p. 980.)

Rupture of the Urethra.—*Treatment.*—Axel Iversen (*Nord. Med. Archiv*, vol. xx, 1888) basing his conclusions on 29 cases of ruptured urethra, agrees with Guyon and Terrillon that rupture of the urethra is frequently only partial; when complete it occurs in the lateral walls or floor of the urethra, and is most frequently situated one-third to one inch anterior to the triangular ligament in the spongy part of the urethra. The exceedingly rare cases of rupture in the membranous part are usually secondary to fractured pelvic bones. The signs of urethral rupture anterior to the triangular ligament are very different from those attendant on rupture of the membranous urethra. In the former there is a rapidly formed circumscribed perineal swelling due to extravasated blood, difficulty in passing urine, or complete retention, and urethrorrhagia. Perineal swelling is the most constant sign of this accident, and reaches its height in an hour. In rupture of the membranous urethra the blood rarely flows from the meatus, passing backward more readily into the bladder; there is no primary swelling in the perineum. Urinary infiltration occurs almost immediately, the urine making its way in the line of least resistance through the weak pelvic fascia near the pubo-prostatic ligaments, and spreading rapidly through the subperitoneal cellular tissue. Later, suppuration may cause perforation of the peritoneum, or the pus descending by the sides of the rectum may show at the anus. Usually all external swelling is absent, and the above occurrences are to be suspected from the severity of the symptoms. As to treatment, Iversen urges the exploration of the urethra with a small bougie-à-boule, the lip of which can readily be felt and located through the rectum. The surgeon should be content with leaving a catheter in the bladder only in the slightest cases where there is little or no swelling, and the instrument passes in without much resistance. The same remark applies to treatment by regular catheterization. In the more severe cases an incision must be made, the rent found, and a soft catheter passed through the entire urethra to the bladder. In eight or ten days it can be removed, and the patient allowed to pass his water. In the rare cases where the proximal end of the torn urethra cannot be

found, a suprapubic cystotomy should be performed, when by the aid of posterior catheterization the soft instrument can be put *in situ*. If extravasation and abscess have already occurred, a catheter should not be left in the bladder, as sloughing might result. (American Journal, May, p. 522.)

Supra-Pubic Cystotomy.—As the result of some experimental investigations upon the cadaver, undertaken to investigate the relative position of the parts involved in the supra-pubic route to the bladder, Dr. Albert Strong, of Chicago, submits the following conclusions:—1. In the normal condition, the bladder and rectum being empty, the apex of the bladder and peritoneal reflection are a little above the arch of the pubes. 2. In moderate distension of the bladder the anterior peritoneal reflection is below the apex; with the same degree of distension and the bladder pressed against the abdominal wall, the peritoneum ascends higher. 3. Supra-pubic cystotomy can be most easily and safely performed when the bladder is lifted from the pelvic floor and moderately distended against the abdominal wall. 4. Distension of the rectum alone elevates the base of the empty bladder, but does not raise materially the vesico-abdominal fold of peritoneum. 5. Distension of the bladder alone, in thin subjects particularly, requires relatively a greater amount of fluid to elevate the peritoneal reflection. The bladder is not crowded against the abdominal wall, but rather falls away from it. 6. Moderate distension of both rectum and bladder meets the indication the best; from 10 to 12 ounces in the rectal bag and 8 to 10 in the bladder is generally enough, and seems to be a safe quantity to use. 7. Dilatation of the rectum first and the bladder afterward lifts the peritoneal reflection the highest. 8. The object of the rectal bag is to elevate the distended bladder and press it against the abdominal wall and so crowd up the peritoneum. 9. To meet the indication the gut should be dilated from the anus to near the promontory of the sacrum. 10. The rectal bag should be sausage-shaped, of rather thin rubber, rather than pyriform and thick, for the thinness enables it to follow up the gut, and the shape makes uniform pressure throughout the entire length. 11. In a very fleshy subject, with a flabby or pendulous belly, the bladder is relatively freely movable. In such a case it will easily rise out of the pelvis against the abdominal wall, when alone distended with a moderate quantity of water; the rectal bag may then be safely dispensed with. 12. Air, injected into the bladder of a subject, lifts the bladder and its peritoneal reflection out of the pelvis better than water; see cases ii, vii, xi and xiv. 13. In one case the gut was ruptured opposite the promontory of the sacrum with 23 ounces in the rectal bag (case xxi); in no case was the bladder ruptured. 14. In the cases reported an average of 14 ounces in the rectal

bag and 12 in the bladder elevated the anterior peritoneal reflection an average of 1½ inches above the crest of the pubes; the apex of the bladder was one inch higher.—In 25 cases reported by Dr. Helmuth in his monograph on supra-pubic lithotomy, when the bladder alone was injected, the average quantity of water in each was 27 ounces, the peritoneum was lifted 2 and the apex of the bladder 4 inches above the crest of the pubes. In five of these cases rupture of the bladder occurred with an average of 59 fluid ounces. (Annals of Surgery, January, 1888, p. 29.)

Supra-pubic Prostatectomy.—At the Leeds and West Riding Medico-Chirurgical Society, on April 6th, Mr. Edward Atkinson related two cases in which he had performed the supra-pubic operation for removal of portions of the prostate gland by Mr. McGill's process, as detailed in *Retrospect*, vol. xcvii., p. 323. The first case was that of a farmer aged sixty-six, who was admitted into the Leeds Infirmary on Oct. 12th, 1887. For five years he had suffered from repeated attacks of retention of urine requiring catheterism, the urine on each occasion containing much blood. Two days before admission he had been seized in this way, and was sent to the infirmary on account of increased difficulty in introducing the catheter. On admission the bladder reached half way up to the umbilicus; there was evidence of free urethral hæmorrhage; the prostate was found to be considerably enlarged, especially in its right lobe; and on introducing the catheter a considerable quantity of dark chocolate coloured urine containing numerous large clots was drawn off. For eight days the catheter was required every four hours, and the bladder was regularly irrigated with a weak boracic solution; but there was little improvement, although the urine was occasionally clear, and remained acid and free from decomposition throughout. On Oct. 20th Mr. Atkinson operated in the usual manner, the rectal bag containing twelve ounces of water, and the bladder ten ounces of boracic solution. A large growth, about the size of a cricket ball, was found to spring apparently from the right lobe of the prostate. There were two openings into the bladder: one below and behind the tumour, the other through its centre. The former appeared to be the normal opening to the urethra, the latter a false passage. The mucous membrane being incised, a considerable part of the mass was enucleated in several portions, which shelled out readily. There was free hemorrhage. The bladder was washed out with boracic solution, and a large drainage tube inserted. The patient's condition was very critical for a time, with vomiting, diarrhœa, and extreme feebleness, and subsequently bronchitis; but he eventually made a good recovery, and was discharged on Jan. 14th, 1888, passing all the urine per urethram, without the need of a catheter. In the

second case, a man aged seventy-one, had for two years suffered from symptoms of enlargement of the prostate, and for four days before admission to the infirmary (Dec. 9th, 1887) there had been complete retention of urine. The catheter had been passed regularly for two days, and clear urine withdrawn. On the third day he did not see a medical man. On the day of admission an attempt to introduce a catheter had failed, and when seen in the ward the bladder was distended up to the umbilicus; there was hemorrhage from the urethra; the prostate was found to fill up the space between the ischial tuberosities, and the catheter withdrew fifty ounces of deeply blood-stained urine. The catheter was passed regularly for four days, and the bladder irrigated with a solution of hamamelis and boracic acid, but without any effect upon the hemorrhage. Half-drachm doses of turpentine were given every four hours, after which the bleeding stopped almost entirely. On Dec. 15th Mr. Atkinson operated as in the preceding case. Two large masses, about two inches in long axis, were found projecting into the bladder, one on each side of the urethral orifice; and projecting from the lower and mesial surface of the left enlargement was a pedunculated nodule about the size of a marble, which appeared to block the urethral orifice. This was removed with scissors, and the two principal masses were then enucleated by the finger. There was little hemorrhage. The operation was concluded as described in the former case, but at a later period the bladder was drained by a long tube into a vessel placed beneath the bed, which was thereby kept dry and comfortable. The patient went on well for a month, when the wound was healed, and he was allowed to get up. The wound, however, opened slightly, and he was ordered back to bed. Six days afterwards (Jan. 20th) he developed acute pleurisy, to which he succumbed on Jan. 30th, the local conditions being quite satisfactory. (Lancet, June 16, p. 1195.)

Urethral Injection of Cocaine followed by Death.—The man was placed upon the operating table, one drachm of a twenty per cent. solution of muriate of cocaine was introduced into his urethra, by means of a long-nozzled urethral syringe which passed about four inches into the canal. The instrument had scarcely been taken out of the urethra when the patient made a foolish remark, the muscles of his face began to twitch, the eyes staring, pupils dilated, frothing at the mouth, face much congested, respiration interfered with, and ending in a violent epileptiform convulsion, lasting for some seconds. These convulsions were continued with increasing violence, several times a minute, the whole muscular system taking part in the spasms, requiring considerable force to keep him from falling off the

table. The action of the heart was not much interfered with, and appeared only to be secondarily affected. It was the respiratory function that seemed first to fail, and then the heart's action became irregular and slow. The breathing was gradually more and more interfered with, the face—in fact, the entire surface of the body—became deeply cyanosed, the pulse slow, and at the end of twenty minutes from the first convulsion had ceased to beat. The man was dead. The means employed to relieve the patient were all useless; nothing had any effect in controlling, lessening or in any way influencing the ultimate result, and I may say everything was promptly and efficiently done; the entire staff of resident physicians of the hospital ably assisted me in my efforts, which unfortunately were futile. (Dr. J. C. Simes, the Episcopal Hospital, Philadelphia, Med. News, July 21, p. 71.)

Vesical Symptoms.—*Influence of the Kidney in producing.*—M. Guyon reports (*Annales des Maladies Org. Gen.-Urin.*, April, 1888) an interesting case of a patient, forty-two years of age, with a history of repeated attacks of nephritic colic, and of three lithotripsies, all of which he had borne well. In August, 1887, he was attacked with sharp pain in the region of the right kidney, and afterwards with a series of nephritic colics; the renal pain increased; he walked bent almost double, and finally developed increased and urgent frequency of urination both by day and night. On his admission to the hospital he urinated every four or five minutes, and urination was accompanied by sharp vesical pains. The pain began before the beginning of urination, and was severe again at the end of the act. In December the urine became bloody and remained so. There was little or no pus in the urine. Rectal examination disclosed a hard mass at the vesical end of the right ureter. There was no true cystitis. Treatment of various kinds gave no relief. The patient died on December 23rd. The autopsy disclosed inflammatory lesions of the end of the ureter, renal calculi, dilatation of the right kidney, and disappearance of the cortical substance. (American Journal, July, p. 82.)

AFFECTIONS OF THE BONES AND JOINTS, ETC.

Ankle-Joint—*Resection of.*—Dr. A. T. Cabot recently showed at the Boston Society for Medical Improvement eight cases of resection of the ankle-joint, for caries of the tarsal bones, probably tuberculous in character. In all the results were good. He believes that in regard to the operation the most important indication is the thorough removal of all diseased tissue, osseous, cartilaginous, and synovial. In his earlier cases he often tried to limit the operation to the parts evidently diseased, and scraped out the

softened portions with a sharp spoon. In dealing with the small bones, however, the parts left almost certainly became affected with the disease, and had subsequently to be removed, so that, later, he had adopted the plan of removing the whole of any small bone which showed unmistakeable caries. The only exception to this rule was made in cases of caries of the os calcis, in which the disease seemed to be wholly extra-articular. The metatarsals were treated by the removal of the diseased ends. As to the tibia and fibula, there are strong reasons for trying to save all the healthy bone possible: first, because interference with the epiphyseal cartilage affects the future growth of the limb, and may unnecessarily add to the shortening; and, second, because the malleoli, when they can be preserved, add greatly to the strength and steadiness of a new joint. The shortened foot falls in between them, and they give much lateral support. It is, therefore, better, when possible, thoroughly to scrape out the diseased tissue in these bones, and not, except in extreme cases, to saw off the ends evenly. After the removal of the bones the diseased synovial membrane should be carefully dissected out. In the after-treatment iodoform is especially valued, as it seems to have the power of checking any subsequent tubercular formation which might start from small portions of granulation tissue overlooked in the dissection. A seton of iodoform gauze is passed through the joint from side to side, and is kept in position until the wound is healed up; when it is finally withdrawn the sinus usually closes promptly. A posterior wire splint was used in all his cases. He employed the method by two lateral incisions. (American Journal, June, p. 634.)

DUPUYTREN'S CONTRACTION.—*Treatment of.*—(By Prof. Kocher, Bern., *Centbl. f. Chirg.*, 1887.) That Dupuytren's finger-contracture does not depend on changes in the flexor-tendons is everywhere acknowledged. But amongst German writers there has been quite a dispute as to the relative participation of the palmar fascia and the skin. Kocher reports 4 cases operated by simple longitudinal incision of the skin and excision of the fascia. In this way he was better able to examine the parts *in situ* and later, through Prof. Langhaus, also histologically. The affection begins in a few foci. These lie partly in the aponeurosis itself, partly in the adjoining tissue. In the latter there is a proliferation of nuclei in the walls of the arteries, and also capillaries, on which a subendothelial very nuclear adventitia develops. In the aponeurosis the vessel carrying connective tissue increases and thickens and the cells multiply. The process even penetrates the fat tissue, by way of the capillaries. Though leucocytes were not found, yet the process might be called a chronic-plastic inflammation starting from the palmar fascia. The elasticity of the skin is preserved, although it may at some

points become secondarily involved. He holds that the correct procedure for the radical cure of Dupuytren's finger-contracture consists in thorough extirpation of the thickened and shortened palmar fascia with its extensions, after simple longitudinal incision of the skin. This method is especially applicable in the early stages. His cases gave good results, though further limbering of the finger by manipulation, &c., was necessary, and some weakening of the fingers was not excluded. No operation, unless it include prophylactic excision of healthy parts of the fascia, can guarantee against relapses. Gersung (1884) reported a successful case operated in like manner. (Annals of Surgery, Jan., p. 57.

Dupuytren's Fracture.—At the Pathological Society, on May 15th, 1888, Mr. Jonathan Hutchinson, jun., showed an example of Dupuytren's Fracture, obtained from a man aged twenty-five, who had sustained the fall of a heavy weight on the outer side of his foot. Both malleoli had been broken, as well as the fibula, about three inches above the ankle, and in addition the lower fragment had been separated from the tibia, from which it had pulled off a piece of bone—the attachment of the inter-osseous ligament. The astragalus had gone up in the gap thus formed and the distance between the malleoli was much increased. Amputation became necessary owing to extensive injuries to the soft parts. Dupuytren's fracture, which may be regarded as an exaggerated Pott's fracture, is so rare that only a few specimens exist in our museums, the chief being Sir A. Cooper's in St. Thomas's, and Mr. Thomson's in Dublin. Dupuytren stated that it occurred in the proportion of 1 to 200 cases of fracture of the fibula. At the London Hospital it occurred once (possibly twice) to 140 cases of Pott's fracture and 210 cases of fracture of the fibula. Forcible eversion of the foot, which causes the outer border of the astragalus to act as a wedge, seems to be the usual cause, and generally the interosseous ligament tears off its attachment to the tibia. The upper fragment of the tibia is retained in position by the interosseous membrane, and the extent to which the astragalus rises depends on the exact point at which the fibula is broken. (Lancet, May 19, p. 975.)

Hammer-Toe.—*Treatment by Resection.*—At the French Surgical Society, on July 18, 1888, M. Terrier read a paper on the treatment of hammer-toe by resection. This method had been practised successfully by MM. Brun and Charles in two cases previously reported by them. In the first case there was a deformity of the second toe, thought to have been caused by a badly fitting shoe. The toe was fixed so strongly that the patient walked on its dorsal surface. M. Brun opened the joint and resected the head of the second phalanx. The wound was

immediately closed, no drainage being provided for. The patient made a good recovery and the function of the foot was perfectly restored. The patient of M. Charles was a woman, aged thirty. The same operation was performed, and though the toe was not perfectly straightened, the woman was able to walk well and without any discomfort. A similar operation was performed subsequently by M. Cohen. Two instances were also reported by M. Schwartz. In these cases, however, the method followed by Williams and Anderson was adopted. This consists in making a longitudinal, instead of a transverse, incision, and possesses the advantage of allowing the removal of the callosity and of the bursa lying over the most prominent part of the deformed toe. The author then reported a case of his own, occurring in a young girl, who had a congenital hammer-toe which had been aggravated by a badly-fitting shoe. He resected the ends of both bones by the cutting pliers, inserting a drainage-tube. The latter was removed on the third day, and on the tenth day recovery was complete, the patient being able to walk well. Since then he had simplified the operation by discarding the drainage-tube as well as the plantar splint. Since his previous report he had performed Cuneiform osteotomy successfully in eight cases. (N. Y. Med. Record, Aug. 18, p. 189.)

Loose Bodies in the Joints.—König (*Deutsche Zeitsch. für Chir.*, 1887), after a description of three cases of movable bodies in the elbow-joint, and after describing the dissections of five joints in cases of arthritis deformans and others in which free bodies existed, comes to the following conclusions :—1. The formation of a loose body in a joint as the result of a separation of a portion of the joint surface through injury is relatively rare, and is conceivable only where the force is very severe. 2. As a result of such great force, a portion of the joint surface may be torn off through its ligamentous attachments ; or a whole section of the articular surface—as, for instance, the head of the radius or that of the femur—may be broken off through leverage as well as through crushing force. It is practically impossible that flat pieces could be separated in this way from the articular extremities of bones without giving rise to some injury of the joint itself. 3. It is, however, quite conceivable that such portions of bone could be so badly contused by traumatism as to become necrosed and separated through inflammatory processes. 4. There is an idiopathic dissecting osteochondritis which, without noteworthy injury to a joint, gives rise to separation of portions of joint surface. A large number of cases of movable bodies in joints, until now believed to be traumatic in their origin, have arisen in this way. 5. The etiology of this supposed pathologico-anatomical process is at present unknown. (American Journal, April, p. 419.) [See also Mr. Teale's cases at p. 263 of this vol.]

Rubber Drainage Tubes. — *Disinfection and Hardening of.*— I wish to draw attention to a recent paper in the *Centralb. für Chir.* (18th Aug., 1888), by Dr. Javaro, on "The Disinfection and Hardening of Rubber Tubes" (gummidrains). The customary practice of keeping tubes in antiseptic solutions of either carbolic acid 5 per cent. or bichloride of mercury 1 to 2 per cent. for a lengthened time leads to their becoming considerably softened, so that not unfrequently they are incapable of remaining pervious under a slight pressure from the tissues in which they are embedded. To obviate this the author places the tubes for five minutes—the larger tubes a little longer—in concentrated sulphuric acid, when they become hard and of a dark chestnut colour. They are then washed in 75 per cent. alcohol, and finally kept for use in one of the ordinary antiseptic solutions. If the tubes are rendered too hard, they can be softened by working them about with the fingers. (Mr. Maylard, Glasgow Med. Journal, Oct., p. 317.)

Traumatic Cephal-Hydrocele. — Mr. Southam reports an example of this interesting condition occurring in the case of a child aged 6 months. The child had sustained a gutter-shaped fracture of the right parietal and occipital region, followed immediately by several symptoms of intra-cranial injury. In the course of 14 days these symptoms having disappeared, and the child being regarded as well, a swelling, corresponding to the fracture, and pulsating synchronously with the fontanelle, was discovered. A month later the swelling had entirely disappeared, leaving the child in the enjoyment of perfect health. Commenting upon the case Mr. Southam says:—The condition, of which the case is a good illustration, was first fully described by Mr. Clement Lucas, in the Guy's Hospital Reports for 1876; since that date other instances have been recorded both by himself and other surgeons. Lucas believes that the cerebro-spinal fluid escaping through the fracture in the vault of the skull comes, not as one would suppose, from the subarachnoid space, but from the lateral ventricle, owing to the laceration of brain substance which accompanies the injury to the head involving the ventricular cavity. In two instances he has been able to verify this opinion by post-mortem examination, and in two other recorded cases a similar communication has been found to exist. The present case, to some extent, supports this view, for the deep in-driving of the bone at the seat of fracture would almost necessarily be accompanied by a wound of the dura mater, while from the nature of the injury and the symptoms which the child afterwards presented, it is probable that some laceration of brain substance was also produced. The fact that the swelling did not appear until after an interval of thirteen days also agrees with the period at which the tumour has first shown itself in other

cases, and Lucas suggests that the inflammation which follows the injury to the brain is accompanied by softening of the cerebral substance and increased secretion of cerebro-spinal fluid, "so that pressure from within and yielding of the brain-wall together contribute to the escape of fluid from the ventricle;" it accordingly accumulates beneath the scalp in the form of a distinct tumour, which, owing to its communication with the interior of the cranium, presents the characteristic symptoms already described. The absence of any cerebral symptoms at the time the tumour appeared is accounted for by the very young age of the child, for it is a recognised fact that in infants extensive mischief may be going on in the brain, without producing the same marked symptoms which would usually be present in an adult. The cessation of the pulsation, and the difficulty in reducing the tumour after the twenty-eighth day, were probably owing to the gradual closure of the fissure in the bone cutting off the communication with the interior of the cranium, and the gradual disappearance of the swelling after that date was the result of absorption of the fluid by natural means, assisted by the application of external pressure. (British Med. Journal, May 12, p. 1003.)

Trephining. —*Re-implantation of Bone to fill the Opening in the Skull left by Operations or Injury.*—Osseous defects in the cranial wall had hitherto remained permanent, the surgeon making no effort to fill the gap. The brain, in the majority of cases, had thus been exposed, the thin membrane forming an insufficient covering, the patient being doomed for the remainder of his life to wear some kind of plate as a protection from injury. Since 1873, the portions removed by me from the skull have been carefully preserved, rendered aseptic, divided into minute fragments, and re-implanted. Whenever there has been immunity from suppuration these have grown, and the continuity of the osseous wall has been preserved throughout. In a case of injury, nearly one-half of the left anterior portion of the skull was broken into fragments, which lay in a confused mass, mixed with brain substance, shreds of membrane, hairs, *debris* of lime and blood. The portions of bone were all rendered aseptic, divided into fragments, and replaced, quite a mosaic work being thereby formed. On the tenth day, a portion of the damaged scalp having sloughed, exposed four of the re-implanted pieces, two of which, lying side by side, presented a striking contrast, one being suffused with the pinkish blush of life, the other with the pallor of death. With the exception of two fragments which shed, all the others remained, grew, and now form a firm osseous wall, affording complete protection. (Dr. Macewen's Address on the Surgery of the Brain and Spinal Cord delivered at the Glasgow Meeting of British Medical Association, pp. 296-315.)

TURPENTINE AS AN ANTISEPTIC.—Speaking of the preparatory treatment of a case of fæcal fistula, Mr. Banks says: Obviously, the first thing to do is to get the parts in the groin into a healthy and aseptic state, so I slit up all the sinuses, scrape them well with a Volkmann's spoon, and pack them with lint steeped in turpentine. This is hardly the time to extol the virtues of turpentine, but, in my experience, there is no remedy at all to be compared with it in its power of cleaning up old sinuses or sweetening sloughing wounds. Being a common and old-fashioned drug, it has been thrown into the shade by more modern rivals, but it will see most of them out yet, I believe. (Liverpool Med.-Chir. Journal, July, p. 298.)

UNUNITED FRACTURES.—*Treatment.*—Dr. Donald Maclean, of Detroit, in his Address on Surgery to the American Medical Association, said: In regard to the treatment of non-union of fractures, there are only three observations which it seems necessary for me to mention. The *first* of these relates to the cause of non-union, about which great uncertainty has always existed in the minds of the profession. For some years past it has been my fortune to receive, at my public clinic in the University of Michigan, many cases of ununited fracture, mostly from the lumber camps and mining districts of the northern part of the State, and I have been struck with the fact that, in every instance, the fracture has been produced by direct and very great violence; so that it has seemed to me a reasonable explanation of this unfortunate accident that the violence of the injury, affecting injuriously the vital powers of the tissues involved, is responsible for the disastrous failure of the reparative efforts of nature. In the *second* place, I have come to believe that it is possible for the surgeon to determine by actual examination whether or not there is any reasonable chance for union to be induced in any given case of this kind. If, on examination, the medullary canal is found enlarged, the cortical substance proportionately thin, the bone and neighbouring tissues generally having undergone fatty degeneration, no operation and no method of treatment will, in my opinion, succeed in inducing union. In the *third* place, experience has led me to discard entirely the expedient of wiring the ends of bone after the operation of resection for non-union. I am convinced that it does not improve the chances for union, and I have in cases of my own and of other surgeons frequently had occasion, months or years afterward, to operate for the removal of silver ligatures which had become a serious source of annoyance and danger to the patient. Within a few months I have performed resection of the femur for non-union in two extremely bad cases and in an equally bad case in the lower jaw where the fracture was compound and comminuted, and in all three the result was complete

success although no silver ligatures nor appliances of that kind were used. The fractures of the femur were treated simply as any ordinary case of compound fracture of that bone would be treated, namely: by newspaper coaptation splints, a modification of Liston's long splint, and Buck's extension and counter-extension apparatus by weight and pulley. In none of these cases were any germicides or antiseptics used, although a strong effort in the direction of perfect surgical cleanliness was made, and in all the wounds healed rapidly and with very little irritation. (Journal American Med. Association, June 30, p. 805.)

AFFECTIONS OF THE SKIN, ETC.

ACNE.—*Treatment.*—Unna divides acne into two clinical divisions—1. The process of closing of the follicle and formation of the comedo. 2. The process of suppuration of the follicle. Comedones are to him only the evidence of the abnormally close coherence of the corneous layer of the skin in the parts supplied with lanugo hairs. The corneous layer becomes thickened and closes the mouth of the follicle. The comedo forms on account of the continuance of the parakeratosis on the inside of the follicle. Suppuration only succeeds to the comedo formation in those follicles which contained *Staphylococcus aureus et albus* before they became closed, or into which they have entered on account of some subsequent irritation, as from tar, chrysarobin, or the like, permitting their breaking through the walls of the glands. The indications to be met in the treatment of acne are two—1. The loosening of the corneous layer of the skin. 2. The killing of the staphylococcus. We can fulfil the first indication in public practice by the use of green soap, acetic acid, a five per cent. caustic potash solution, and salicylic acid plaster. In private practice these are too rough procedures, and it is better to use sulphur with carbolic acid, or resorcin with corrosive sublimate. Two or three times a week it is well to scrape off the whole diseased parts with the curette, open all pustules, and squeeze out all comedones. The patients should wash with warm water and soap, and follow this, if their skins are tender, with a powder of oxide of zinc and flour. During the night the medicament is best applied in a paste; during the day in a watery or spirituous solution, two or three times daily after washing. Thus, *at night* we might prescribe: ℞. Benzoinated zinc ointment, 86 parts; precipitated sulphur, 10 pts.; siliceous earth, 4 pts. And *by day:* ℞. Resorcin, 2 to 5 parts; glycerin, 1 pt.; orange-flower water, 20 pts.; alcohol, 80 pts.—Or, *at night:* ℞. Benzoinated zinc ointment, 80 parts; resorcin, 10 pts.; siliceous earth, 10 pts. And *by day:* ℞. Corrosive sublimate, 0·05 to 0·2 part; glycerin, 1 pt.; orange-flower water, 20

pts.; alcohol, 80 pts. After the acne is pretty well overcome by these means, it is well for some time to use a resorcin paste, or a resorcin-sublimate-spirituous solution, or simply the use of sublimate soap. (New York Med. Journal, April 21, p. 444.)

Acne.—Ignipuncture.—Fournier (*Gaz. des Hôp.*, Jan. 10, 1888) recommends for the treatment of acne the use of ignipuncture by means of a fine malleable platinum rod, heated in the alcohol flame, and introduced perpendicularly into the diseased follicle. Some ten glands are treated at a sitting, the part is then dressed with cold water, and afterward with mercurial plaster. He regards this procedure as being safe, and by far the surest mode of treatment. Together with the use of ignipuncture, the habits of life are to be regulated, and sulphur mineral-waters drank. (Ibid., July 28, p. 108.)

Acne with Comedones.—Besnier (*Jour. de Méd.*, April, 1888) advises for this affection, when the comedones are very profuse, the application every night during eight days of a pomade made as follows: Salicylic acid, two parts; precipitated sulphur and potash (soft) soap, each fifty parts. After eight days an emollient dressing is to be used, and it will be seen that many of the comedones are destroyed. (Ibid., p. 108.)

Chronic Acne.—(*Lyon Medicale*, Aug. 1888) For chronic acne:—℞. Resorcin, pulv. amyli, zinci oxydi, āā ʒj; ung. petrolei, ʒiij. M. (Medical News, Sept. 1, p. 239.)

Acne Rosacea.—*Treatment.*—Long since, the vascular nature of rosacea, in which the capillaries at times reach an enormous degree of dilatation, suggested the idea of treatment by incising the vessels at several different points in order to cause their disappearance. Bazin and Westerton first cut the vessels, and then cauterized them with perchloride of iron. Hebra, of Vienna, had a little instrument made with a triangular point, and a guard which prevented its too deep penetration (Stichelnadel). He employed it to make punctured scarifications of the surfaces attacked with rosacea. Dr. Vidal, according to the Paris correspondent of the *Jour. Cut. and Gen.-Urinary Diseases* for April, 1888, uses it also in certain cases, especially in sycosis, and in indurations of limited extent but deeply penetrating, complicated with intradermic abscesses. When these infiltrations are punctured in multiple points, they are indeed seen to be rapidly absorbed. Nothing can, however, be compared, as regards the efficacy of treatment in rosacea of a marked type, with linear quadrilateral scarifications. They should be made in a regular manner, at a millimetre or a millimetre and a half apart, quite long and deep enough to cut across the dilated and varicose vessels. If we have a hypertrophic acne to deal with, it can as well be modified for the better by this

procedure, but here the derma must be incised in nearly its whole thickness, but without reaching the subcutaneous cellular tissue, and much less the cartilage, so as not to leave visible cicatrices; and in this we are not guided, as in lupus, by the softness of the morbid tissue. Here, again, as in lupus, it must not be thought that we treat all cases of rosacea by this method. We only treat in this way at first those cases in which the dilatation is too far advanced, and the vessels too numerous for us to hope for any results from other means; otherwise we resort to other well-known forms of medication or alternate with linear scarifications. These latter may also be employed to cause the last traces of the disease and the varicosities to disappear, which, without this powerful intervention, would persist too long, if not permanently. (Therapeutic Gaz., May 15, p. 336.)

Acute Circumscribed Œdema of the Cutis.—A study of this affection by G. Riehl will be found in the *Wien. Med. Press*, 1888, Nos. 11 to 13. This disease is known also as giant urticaria, acute angeio-neurotic œdema, and *urticaire massive.* It is marked by disturbances of the general health and of the bowels, and by peculiar manifestations upon the skin, all of which are dependent upon a common cause. The most prominent symptom, and sometimes the only one, is the acute appearance and rapid disappearance of œdema of the skin, subcutaneous tissues, and certain mucous membranes. The eruption appears without cause or prodromes, and reaches its height in from one to three hours. It consists in an œdematous swelling without any inflammation, which shades off into the sound skin, is hard or firm to the touch, preserves for a time the finger print, is of normal colour or transparent white or red, and may attain the size of the hand or larger. The epidermis is stretched and glistening. The temperature of the part is normal; the sensibility is somewhat reduced; there is no pain. There is some burning and tickling, but seldom itching. The average duration of a single efflorescence is twenty-four hours. There is usually a single lesion to each attack, though there may be a number of lesions, or a single lesion may spread, creeping slowly along. The pharynx, larynx, or nose may be similarly attacked, and so much dyspnœa caused as to require tracheotomy. The trunk is seldom attacked. The disease relapses from time to time, lesions at first appearing in different places, but afterward tending to recur in the same place. The frequency of the attacks is variable; sometimes the patient will remain free for a time, to have new attacks at intervals of eight to fourteen days, or even every three or four weeks. The duration of the disease may be weeks or years. The oft-repeated œdema may lead to permanent stretching of the skin, or to a slight thickening of the same. In some cases vomiting, somnolence, constipation, suppression of

urine, or albuminuria may be prominent symptoms. It occurs at all ages and may be inherited. The cause of the disease is unknown. It is probably a vaso-motor disturbance originating in the central nervous system. It differs from ordinary urticaria in the marked absence of itching. Treatment has thus far been in vain. (N. Y. Med. Journal, July 28, p. 109.)

Alopecia Areata.—Max Joseph has already demonstrated the connection between this disease and nerve lesions, and now (*Berl. Klin. Wochns.*, Jan. 20, 1888) adduces further arguments in support of his belief of its dependence upon disturbance of the nutrition of the parts affected. It is a known fact that dogs soon become bald when deprived of nitrogenous food, and Remy (*Jour. f. Anat. u. Phys.*, 1880) has reported a case of entire fall of the hair from the body of a man suffering from cirrhosis of the liver. Moleschott (*Atti della Real. Acad. delle Sci. di Torino*, 1878) observed the decrease in the growth of hair and nails in a case of catarrh of the bladder. But in these cases the connection between the hair-fall and the disease is by no means clear. On the other hand, most cases of alopecia areata are preceded by headache which lessens or ceases when the hair falls. Sometimes this headache is in the form of a pricking sensation which may be closely limited to the soon-to-be-affected spot. Many cases occur at puberty and at the age of dentition. There is nothing pathognomonic in the appearance of the affected hairs. The affection has its seat in the matrix, and is due neither to micro-organisms nor to alterations of the blood-vessels, but simply to the action of the trophic nerves. In the experiments upon cats the hair fell out from the fifth to the twenty-seventh day. In a patient Joseph was able to determine the lapse of two days between a nervous shock and the fall of hair, and its continuance for fourteen days. The hair grew in six months, and a relapse took place in three years. The manner of distribution of the bald places and their characteristics are strikingly similar in man and in the animals operated on. In cats, in a number of places the hair first became thin, and after a time complete baldness set in. The contour of these places was always quite regular, sometimes circular, sometimes oval, sometimes oblong, constantly sharply defined. These places sometimes remained discrete, sometimes two or more ran together. Further, both in clinical cases and experimental ones, there was marked symmetry in the arrangement of the patches. This is an argument for the nervous origin of the disease. The sensibility of the skin is not altered, nor should we expect it to be, as by disturbances of sensation fall of hair does not take place. That depends upon trophic disturbances. It is probable that other causes than tropho-neuroses may give rise to alopecia areata, though so far they are unproved. (Ibid, p. 109.)

Alopecia Pityrioides.—A six-per-cent. pomade of resorcin is recommended editorially in the *Monats. Dermat.*, 1888, No. 6, for the treatment of this affection. It is to be applied at night and a cap of oiled silk to be then put on and worn until the next morning. Once a week the scalp is to be washed with tinct. sapon. viridis. (Ibid, p. 109.)

Anti-Parasite and Vermin Killer.—*Naphthalin as an Insecticide.*—Hager calls attention to the dangers attending the use of arsenic and its preparations as an anti-parasite and vermin-killer. He strongly recommends to use naphthalin whenever arsenic would be indicated for the above purposes. He gives among others the following formula:—Naphthalin, 40 parts; chloroform, 80 parts; benzine, 100 parts.—Mix. Heat carefully to about 20° C., and agitate till the naphthalin is dissolved. American petroleum may be substituted for the benzine. These solutions may be applied as they are to the skin of animals infested with vermin, or they may be applied in a diluted state. The naphthalin may be incorporated with vaseline if an ointment is desired for use, or if an oily liquid is wanted the above solutions may be mixed with liquid vaseline in the proportion of 200 of the former to 1,200 of the latter. Hager also speaks highly of the infusion of quassia as an anti-parasitic application. (Medical News, June 23, p. 694.)

Antiseptic Paste for Ulcers.—*L'Union Médicale* of May 19th, 1888, gives the following formula for an antiseptic paste:—Iodoform, gr. 40; essen. eucalypti, ʒ 5; paraffin, ʒ 12½; vaselin, ʒ 12½. This paste is especially adapted to the treatment of ulcers. (Medical News, July 7, p. 19.)

Arsenical Staining.—Another very peculiar action of arsenic is the production of a brown staining of the skin. I have had an epileptic under treatment now for two years with bromide of potassium. When he first commenced the use of the bromide it produced a very disfiguring acne; by combining it, however, with Fowler's solution this was in a great measure prevented. He, however, had not been taking the arsenic for any length of time before there appeared a brown staining of the skin, which was general, but more marked on the face and hands than elsewhere. The boy's mother was in a state of great alarm lest her child should turn into a "nigger." At the time I was not acquainted with the fact that arsenic may give rise to staining of the skin. On discontinuing the arsenic the staining slowly disappeared. Arsenical staining is not permanent. It differs, therefore, from silver staining, which is permanent. The latter is due to the actual deposition of the metal in the tissues. Staining from arsenic, on the other hand, is simply pigmentary, and always disappears after the drug is given up. (Prof. Stewart, p. 379.)

Boils.—*Abortifacients of.*—Kenner states (Med. and Surg. Rep., April 14, 1888) that boils and felons may be frequently aborted by applications of citrine ointment, if treatment is instituted before positive suppuration occurs. The ointment is applied in a thick layer, as a plaster, and allowed to remain on twenty-four hours, at the end of which time further treatment is, as a rule, unnecessary. The application is not painful, for the first several hours giving rise to a peculiar drawing sensation, followed by complete cessation of pain and tenderness. (American Jour., Aug.)

Cutaneous Medication in Children.—Writing on the employment of powders, solutions, liniments, ointments, and baths in infancy and childhood, Dr. Jacobi, of New York, reminds us that in these subjects the skin is thin and irritable. Erythema will follow the contact with water quite often; thus many forms of dermatitis contraindicate its frequent use. Acute and chronic eczema get on better without water than with it. Therefore astringent solutions are less advisable than astringent ointments. For superficial effect these must be prepared with vaseline or cold cream, either of which may be readily combined with lead, tannin, zinc, bismuth, salicylic acid, or iodoform. In not a few cases with a very sore surface, denuded of its epithelium and oozing, the powders alone, or combined with starch in different proportions, will prove very effective. Oleates ought to be avoided—they irritate the skin and produce eruptions. As the skin is thin and succulent, and the lymph-ducts superficial, large, and numerous in the young, substances will penetrate the skin very readily. Ointments with that object in view must be prepared with animal fats, particularly with lanolin, to which ten per cent. of water must be added. Still, much friction may by itself irritate the surface and give rise to suffering. (Practitioner, Aug., p. 139.)

Eczema in Aged People.—*Local Treatment.*—Dr. Arthur Van Harlengen, of Philadelphia, says: The local treatment of eczema in the old is of great importance. Soothing remedies, as baths of starch and bicarbonate of sodium; lotions, as lead-water, black wash, may be employed with advantage. The fluid extract of grindeila robusta may be used when the eruption is inflammatory and acute. It should be employed in a diluted form, half an ounce to an ounce being mixed with a pint of water. In applying this wash, cloths soaked with it should be applied to the affected part and allowed to dry in contact with the skin, being then changed for a wet application. On no account should evaporation be hindered, since this would convert the evaporating dressing into a poultice, thus forming maceration and discharge, which is chiefly to be avoided. In many cases bland astringements or soothing powders may be employed to

advantage. Rye flour sometimes succeeds when other applications irritate. The simple dry starch flour, lycopodium, kaolin or subnitrate of bismuth may be mentioned as likely to agree in acute cases. None of these, as a general thing, should be used when there is much discharge. The flour and starch powders in particular are apt to cake and form a crust, under which fermentation with the formation of acid discharge is apt to occur very speedily, adding much to the patient's discomfort, and often aggravating the disease. The following powder is one which I often use as an antipruritic with considerable benefit:—Pulv. camphoræ, ʒj; pulv. zinci oxidi, pulv. amyli, āā ʒss. M. It should be thickly powdered on, or where practicable, strewn thickly on lint and bound to the parts. Ointments are most generally useful in eczema of old persons, both soothing ointments and stimulating and antipruritic ointments. Among the soothing ointments McCall Anderson's bismuth ointment stands first. It is composed as follows:—Pulv. bismuthi oxidi, ʒj; acidi oleici, ʒj; ceræ albæ, ʒiij; vaselini, ʒj-ʒj; olei rosæ, ♏iij. M. Hebra's unguentum diachyli is also useful when well made. Dilute oxide of zinc ointment, ointment of the subnitrate of bismuth, a drachm to the ounce, and of tannic acid in the same strength prove useful at times. When somewhat more stimulating ointments are called for, carbolic acid in the strength of ten to thirty grains to the ounce will be found both stimulant and anti-pruritic. Pruritus is at times a most distressing symptom in the eczema of old persons, and tar or carbolic acid will usually be found the most efficient remedy. An ointment of tar, one drachm to the ounce, may be used alone or in connection with a mercurial, as this:—Picis liquidæ, ʒj; ung. hydrarg. nitrat., ʒij to ʒiv; adipis, ad ʒj. M. Sometimes when the eruption tends to palpuation, or when there is much thickening, we may have to use stronger applications, as Wilkinson's ointment:—Olei cadini, flor. sulphuris, āā ʒiij; saponis viridis, adipis, āā ʒvj; pulv. cretæ, gr. xxvi. M. With one of these local applications, or all in succession if required, you will usually be able to give relief to your elderly eczmative patient and occasionally to cure him. (Philadelphia Medical Times; Canada Med. and Surg. Journal, June, p. 708.)

Chronic Eczema. — Resorcin in.—A favourable report is made (*Therap. Gaz.*, June, 1888) by M. Schmitz of the treatment of two obstinate cases of chronic eczema by means of applications of resorcin. The remedy was employed as a solution in glycerine—a half ounce of the former to four ounces of the latter. The patients were young children, the disease chronic, and more or less general. The affected parts were painted twice daily with the above solution, improvement thereafter being steady and continuous. (American Journal, Aug., p. 202.)

Erysipelas.—*Sticking Plaster in.*—Professor Wölfler, of Graz, remarking that Otto had met with considerable success in treating erysipelas on the plan recommended by Barwell and Freer—viz., the application of white-lead paint to the affected part, which they thought acted by keeping the air away from the erysipelas cocci and so prevented them from multiplying,—determined to carry out this principle of the exclusion of air in a somewhat different and more effectual manner. The substance he used at first was linseed-oil varnish, but he found that not only was an impermeable coating necessary, but some degree of pressure as well. He then tried gutta-percha paper fastened to the skin with chloroform. This, however, was not entirely satisfactory, and so he turned his attention to something simpler—viz., strips of isinglass sticking plaster about the breadth of the thumb. This proved exceedingly efficacious, the fever rapidly declining and the erysipelatous blush showing no disposition to spread. (Lancet, July 7, p. 37.)

Excessive Perspiration.—*Treatment.*—Bardet, in excessive and odorous perspiration in the feet or axillæ, combines with bathing and the application of alcohol the use of the following powders: (1) French chalk (talc), 40 parts; subnitrate of bismuth, 45 parts; permanganate of potassium, 13 parts; salicylate of sodium, 2 parts. To be finely pulverised. (2) Rice powder may be used in the following combination: Rice powder, 60 parts; subnitrate of bismuth, 25 parts; permanganate of potassium, 10 parts; powdered French chalk (talc), 5 parts. To be thoroughly mixed and finely powdered. (Philadelphia Medical News, July 14, p. 44.)

Hydatid Urticaria.—It has been observed that an urticarial eruption often appears in patients with hydatid cysts, either following a puncture or subsequent to the spontaneous rupture of the cyst into the peritoneal cavity. M. Debove has demonstrated that the urticaria is the result of an auto-intoxication, caused by the absorption of the hydatid fluid, and that different persons are unequally predisposed. Having filtered the transparent fluid drawn off by puncture of a hydatid cyst, he injected a Pravas syringe full of it at three different points beneath the skin of the abdomen in three subjects who had never had any urticarial eruption. The first gave a negative result. The second had an urticarial eruption localised at the three points inoculated; this eruption appeared as papules at the end of ten minutes. The third had at the outset a localised eruption as in the second case, but twenty minutes later there appeared four large patches of papular urticaria upon the back, and six hours later other patches became confluent upon the fronts of the arms and forearms. (Edinburgh Journal, June, p. 1141.)

Lupus.—*Its Nature and Treatment.*—As the result of a very thorough microscopical and clinical study, Dr. Arturo Risso (*Giornale Italiano delle Mal. Ven. et Pelle*, October, 1887) comes to the following conclusions:—The disease process in lupus erythematosus consists in the invasion of the skin by a granuloma, which produces secondary atrophy of the connective tissue fibres. The granuloma degenerates and disappears, leaving the fibres in their atrophied condition. They thus form a lymphatic reticulum, but the bulk of the reticulum being so much less than that of the diseased or even of the normal skin, an apparent atrophy of the skin results. [The atrophy is generally very real, and may produce well marked and uneven scars.] The leucocytes of the granulomatous growth undergo a granular fatty degeneration; the process, however, is naturally so slow and irregular as to be of little curative effect. Risso employed inunctions of Neapolitan [mercurial] ointment for the purpose of hastening this degeneration, and hurrying on the disease to the stage of atrophy, and with much success. He does not, however, hope that it will be able to prevent relapses, since the irritating principle which is still unknown to us [micrococci?] may still exist in the interior of the organism, and be transported afresh to the skin. Dr. Ravogli (Cincinnati), International Congress, 1887, also supports Kaposi's view that lupus erythematosus is an inflammatory affection, and not a new growth, but, unlike Rossi, he attributes the atrophy to the obliteration of the vessels by the new growth. The prime cause consists in a nervous irritation, which provokes an irritation and disorder in the biological activity of the cells. The epidermic cells are enormous and contain a number of round bodies grouped into colonies, probably micro-organisms, which are present, also, in the papillary body, and in the vessels wherever the inflammatory exudation exists. These he considers to be the probable cause of the disease, but as he has, as yet, made neither cultures nor inoculations, his view must be held as still quite hypothetical. As regards treatment, Dr. Ravogli believes that internal measures are of no avail [Hutchinson reported one case of long standing cured by the persistent use of arsenic], and that caustics and scraping are only of very temporary benefit. The best treatment he finds to be mercurial ointment. He has also obtained three definite cures by the inunction of an icthyol ointment, beginning with a strength of ten per cent., and diminishing it gradually to three per cent. (Dr. H. G. Brooke's Report in Med. Chronicle, April, p. 75.)

Lupus.—Auxiliary Treatment.—Besides plasters, erasion, and scarification, or other modes of dealing with patches of lupus on the large scale, it is also of advantage to attack the nodules of the disease individually, either after the mass has been got rid

of by the methods mentioned, or in association with them, Unna has for the last two years employed the following lotion for this purpose:—℞. Hyd. perchloridi, 4·0; acidi carbolici, vel creasoti, 16·0; sp. vini rectificati, 80·0. M. About ten lupus nodules at the margin of a patch are to be selected at each sitting. Of these each is punctured with an acne lance, and a small pointed piece of wood armed with a minute shred of absorbent cotton which has been dipped in the lotion, is inserted into the puncture so made, the stick is rotated, removed, and the plug of cotton allowed to remain *in situ* for ten to fifteen minutes, then taken out. In two or three days the seat of puncture and the lupus nodules are alike scarcely observable, and ten new spots can be similarly attacked. (Edin. Med. Jour., June, p. 1138.)

Lupus.—In the treatment of lupus erythematosus Heller advocates (*Wien. Med. Presse,* 1888, No. 16, *et seq.*) the use of antiphlogistics, especially cold stupes, either with simple water or with solutions of Goulard's extract, bichloride of mercury, or lime-water, at the same time administering cooling acidulated drinks. He objects very strongly to the use of caustics, multiple punctures, or scarifications, and the curette. He believes that the eruption is but the expression of a diseased condition of the blood, and an anomalous nervous action. It may depend upon anæmia or digestive disturbances, and demand attention to the diet and the exhibition of alkalies and mineral waters. If the digestion is in good order, then iron and arsenic will do good service. Attention must be given to the nerves, and bromides or chloral administered *p.r.n.* He has used carbolic acid by the mouth, sometimes with good result. Ergotin has also been of excellent service where congestion of the head has been a prominent symptom. Iodoform by the mouth has proved useful when the disease shows a disposition to spread. If the disease does not yield to simple antiphlogistics, then recourse must be had to spt. sapon. viridis; ung. hyd. oxid. rubri (2 per cent.); emplast. hydrarg. to small spots; Fowler's solution of arsenic, which, outwardly applied, speedily cures, applied once daily until inflammatory symptoms appear, when cold stupes are to be used; lactic acid, in 30 to 50 per cent. solution. For obstinate patches it is recommended that they be rubbed with a coarse piece of linen until they bleed, and then painted with Fowler's solution. In the treatment of lupus vulgaris we are likewise advised not to use caustics, scarifications, or the curette, but to employ daily applications of solutio Fowleri. If reaction is set up, or when the infiltration and swelling have disappeared, or the ulcers are already granulating normally, the solutio Fowleri is to be stopped, and a solution of carbonate of sodium (one in eight) is to be used. Cicatrisation of the ulcers is to be hastened by the use of either Goulard's extract or a mixture of bichloride

of mercury, 0·15, and lime-water, 150. Internally, iron and arsenic are of use, while cod-liver oil and phosphorus are without value. Ergotin is sometimes useful. (New York Medical Journal, July 28, p. 110.)

Lupus and Epithelioma.—Treatment by Lactic Acid.—Doyon has treated, by the method proposed by Mositig Moorhof (*Ann. Derm.*) two cases of epithelioma, and three of ulcerative lupus of the face. One of the former died of an intercurrent erysipelas. One of the lupus patients was cured in three months, and remained well at the end of a year; another, apparently cured, is still under observation; two others are in course of being treated. The author remarks that, notwithstanding the observations of Mositig, the lactic acid does not absolutely spare the sound skin, but daily watching enables one to avoid the production of cicatrices. Pure lactic acid, of a syrupy consistence, applied on a pledget of absorbent cotton-wool, is left for fifteen to twenty minutes in position. It can only be left undisturbed for twenty-four hours in situations where one has no fear of causing scars at a distance. After being removed, the part is carefully cleansed by means of dry cotton. Before the application is made, the periphery of the affected part ought to be protected by resin plaster; or, even better, by lanoline. The treatment is not very painful, and the applications may be repeated every day. When the destruction seems sufficient, the part is washed with an antiseptic solution, and dressed each day with a pomade of nitrate of silver. The cicatrices are at first soft and pink, but in course of time grow pale, and, at least in the case of lupus, do not contract; for the acid destroys neither the derma nor the epidermis, wherever these are not infiltrated by the new growth. (Edinburgh Journal, May, p. 1052.)

Ointment Bases.—If a penetrating ointment base is desired, so that the remedy may be brought in intimate association with the skin, as often called for in such diseases as acne, psoriasis, certain forms of eczema, alopecia, &c., then the base is to be made up of lard, suet, or lanolin, or a mixture of two or more of these; the selection depending also upon the consistence of the medicament to be incorporated. If protection and a moderate amount of penetration and softening are desired, as often in subacute conditions, then cold cream, or any of the above, mixed with petrolatum, may be prescribed. On the other hand, if simple protection is aimed at, as in zoster, pemphigoid diseases, burns, &c., then petrolatum, unguentum, diachyli, alone or mixed with cold cream or lard, may be employed. If it is desired to emphasise the action of the remedy incorporated, and at the same time employ a base active in itself, as in thickened eczematous patches in callosities, sluggish forms of acne, and the like, then

recourse may be had to mollin and sapo viridis. Finally, in regard to consistence and rancidity; the former may be regulated by the proper admixture of two or more bases, or the addition of wax, spermaceti, or similar substances; the latter may be measurably obviated by the addition of a minute amount of benzoic acid, salicylic acid, or balsam of Peru. (Dr. Henry W. Stelwagon, p. 385.)

Post-Eczematous Furunculosis.—Unna has directed attention to this not infrequent of the sequelæ of eczema. The longer the eczema has lasted, the less it has been treated with antiseptic remedies, the more certainly does there appear, simultaneously with the entire restoration of the surface, suppuration deep in the skin, now involving the sweat, now the hair follicles. The process is analogous to the occurrence of cancer after lupus, of phthisis after pneumonia. In order to hinder the commencing furunculosis, carbolic acid or thymol should be added to the ointments which are being used, or the lead or zinc pastes are to be replaced by resorcin or sulphur ones respectively. Most sure of all, Unna finds the addition of one or two parts per thousand of corrosive sublimate to a zinc ointment, aided by the internal administration of sulphide of calcium in keratinized pills. (Edinburgh Med. Journal, June, p. 1138.)

Scabies.—*An Ointment for.*—Lassar uses the following ointment: Naphthol, grm. 5—10; gum soap, precipitated chalk, washed sulphur, lanolin, āā grm. 25. (Journal Cutaneous Diseases, Feb.)

Senile Pruritus.—*Treatment.*—Besnier (*Jour. de Med.*, April, 1888) recommends for this troublesome affection starch baths, and sponging the whole body every evening with a spoonful of a mixture of aromatic vinegar, 250 grammes, and carbolic acid, 5 grammes, to a bowl of hot water. Then the body is to be powdered with a powder of starch, 90 grammes, and salicylate of bismuth, 10 grammes. Salicylic acid may be substituted for the bismuth. (New York Medical Journal, July 28, p. 110.)

Sweating Feet.—*Treatment.*—In a case recorded by M. Legoux the sweating was abundant and accompanied by such painful symptoms that the patient meditated suicide. Cold foot baths of walnut leaf water were prescribed for the first two days. Then the feet were painted night and morning with this lotion: Glycerine, 10 grammes; liquid perchloride of iron, 30 grammes; essence of bergamot, 20 drops. Almost incredible relief was at once experienced; the sweating gradually disappeared, and in 15 days had quite gone. (Medical Chronicle, June, p. 229.)

Transplantation of Mucous Membrane.—At the Congress of German Surgeons on April 3rd, 1888, Prof. Wölfler (Gratz) spoke of the value of transplantations of mucous membrane.

He said that where cicatrices were produced in cylindrical organs of the body, which were lined with mucous membrane, an operation could only be useful, if it were possible, after excision of the scar, to unite the mucosa. But that was impossible in many cases. Therefore he had employed the method of Thiersch (the transplantation of portions of epidermis) with great success. After having excised the thickened and indurated tissue from impermeable urethral strictures, he transplanted mucous membrane from a prolapsed uterus. The operation was completely successful. In the same manner he transplanted mucous membrane from a prolapsed rectum on to the conjunctiva in a case of blepharoplasty. He succeeded even in transplanting mucous membrane from frogs, pigeons, and rabbits with good results. (British Med. Journal, April 14, p. 820.)

Urticaria.—Urticaria is regarded by Fournier (*Gaz. des Hôp.*, Feb. 23, 1888, *et seq.*) not as a disease in itself, but a simple dermatological type of eruption. This view he bases upon the fact that the wheals appear under a great variety of circumstances, arising from both internal and external irritation. It presents itself under a great variety of forms: sometimes as distinct round wheals; sometimes as linear wheals; sometimes as gyrate lines; sometimes it takes on a hemorrhagic character; sometimes it has no white centre, but is a congestive papule approaching an erythema. Of the congestive form there are five varieties, viz.: (1) Erythematous, roseolous, or macular urticaria, consisting simply of rosy spots, slightly raised, without central discoloration, but otherwise presenting the characteristics of urticaria. (2) Scarlatinous urticaria, resembling scarlatina in the smallness of the spots and in their colour. (3) Papular urticaria, met with in badly-cared-for infants, and seated upon the backs of the hands and feet and sometimes on the face. (4) Urticaria taking the aspect of a furuncular swelling, met with, for instance, upon the lips and the result simply of location. It presents a large, red, hard swelling, greatly deforming the lip. (5) Urticaria nodosum, which exactly resembles erythema nodosum, the lumps varying in size from that of a small nut to that of a turkey egg. The skin is intensely red, and the part is tender upon pressure, but not very itchy. The lesions are discrete, and leave ecchymotic macules on fading. Sometimes we meet with urticaria in the form of a local œdema without redness or efflorescence, which comes and goes suddenly, often relapsing upon the same region. It may also occur upon mucous membranes; probably sometimes upon those of the stomach, intestines, and lungs, giving rise to sudden and evanescent disturbances of digestion or respiration. It may be also a symptom of malarial disease, or septicæmia, as well as quite frequently arising from digestive disturbances, uterine disorders, nervous diseases, rheu-

matism, and gout. It may be hereditary in some cases. In any case a certain predisposition on the part of the individual is necessary for its production. The treatment must be directed to overcoming the cause where discoverable. There can be no specific for the disease. For local treatment we must use something to relieve the itching, such as cold cream, vaseline, hot water, solutions of alcohol or vinegar, chloroform, chloral water, powders of rice or starch, or some such lotion as this: Hydrate of chloral, 3 parts; aquæ laurocerasi, 50 parts; distilled water, 200 parts. (N. Y. Med. Journal, July 28, p. 109.)

Verruca Necrogenica.—*Its Relation to Lupus and Tuberculosis.*—Finger (*Deutsche Med. Wochens.*) shows from his own observations, supported by those of Verneuil, Verchère, Holst, Merklen, Raymond, and others, that the diseases hitherto known as tuberculosis of the skin, lupus, and verruca necrogenica, are essentially identical and due to the same primary cause. He thus confirms the views already expressed (1883) by Vidal and Besnier in regard to the tubercular nature of this last-named lesion. This same lesion may also follow inoculations with sputa, &c. The histological examination usually discloses the presence of the characteristic bacilli. It is, however, more superficial than ordinary lupus, having its seat exclusively in the cutis, while in the latter disease the subcutaneous tissues are also involved. This fact explains the relative curability of these two affections. The writer suggests that children are much more frequently exposed to accidental inoculations of decaying matter, &c., and that the skin being thin and more tender, is much more readily invaded in all parts, and as a consequence the ordinary type of lupus results, whereas, in adults, inoculations result in the superficial form of the disease, so-called verruca necrogenica. (American Journal, June, p. 638.)

Warts and Callosities.—*Treatment.*—Salicylic collodion is not always effectual, and is usually a slow method, hence Dr. Roesen employs salicylic acid in substance instead. He in the first place moistens the growth to be removed with boracic or salicylic solution, then covers it with a tolerably thick layer of pure crystallized salicylic acid, over which is put several folds of wet boracic lint, over this a piece of guttapercha tissue, and the whole is secured by means of a bandage. If the callosity or wart is not too thick, the application is allowed to remain five days, at the expiry of which the growth is found somewhat shrunken, completely separated from its base, and beneath, an entirely unbroken surface. Should the growth to be removed be of considerable thickness, such as an hypertrophied toe-nail, the application must be renewed on the fifth day, or should be allowed to remain in position ten days. (Edin. Med. Jour., July.)

SYPHILITIC AFFECTIONS.

GONORRHŒA.— *Alkaline Injections in.* — It has been remarked that the gonococcus thrives in acid medicines, whereas it soon dies in alkaline. The question immediately arises as to whether it would not be possible to treat gonorrhœa or blenorrhœa accordingly. The *Arch. Méd. Belges* speaks of the experiments of Dr. M. A. Castellan, which were based upon the above hypothesis. Dr. Castellan treated twelve patients with injections of an 8 to 10 per cent. solution of bicarbonate of sodium three or four times daily. In about a week the discharge had become entirely alkaline in reaction, and from that time it lessened rapidly, and soon ceased entirely. In old cases, where all the usual remedies had been used without success, its use led to a rapid and complete recovery. (Edinburgh Med. Journal, May, p. 1048.)

Gonorrhœa—.Use of Bichloride of Mercury in.—In 1877 Dr. Geo. E. Brewer detailed at some length the results of the treatment of one hundred and fifty cases of gonorrhœa by the use of mild solutions of bichloride in the urethra by the continuous irrigation and hot retrojection. In the acute cases the distinction was made between the specific or gonorrhœa form of urethritis and the non-specific or simple variety, and in each of these classes, as well as in chronic cases, the success of the treatment was noted. At the close of the paper the following conclusions were drawn:— 1st. That in uncomplicated cases of acute gonorrhœa urethritis, treated by prolonged and frequent irrigation with bichloride of mercury, recovery may be expected within two weeks. That this period may be considerably shortened by the early inauguration of treatment, by absolute rest, and by the avoidance of stimulants. That it may be indefinitely prolonged by irregularity in treatment, by inordinate physical exertion, and by indulgence in alcoholic and venereal excesses. 2nd. That the retrojection of a hot solution of bichloride possesses all the advantages of the former procedure, and in addition causes a more rapid subsidence of the inflammatory symptoms, a greater feeling of comfort to the patient, and is attended with less annoyance and trouble. 3rd. That in cases of acute non-specific urethritis the favourable influence of each of these methods is strikingly apparent. 4th. That in cases of chronic purulent urethritis, no agent produces such rapid and permanent improvement as irrigation, especially when combined with astringents and heat. 5th. That the percentage of complications occurring in cases treated by these methods is far below that observed when the ordinary treatment is employed. Since then he states in the *Journal of Cutan. and Gen. Urin. Diseases* for July, 1888, that he has records of one hundred and

two additional cases of urethritis treated by these methods, the results being apparently more satisfactory even than the first series, and apparently fully justifying his conclusions. In the first series of cases the average duration of treatment to the cessation of all discharge was seventeen and a half days, while in his last series it was reduced to thirteen days. Inflammatory complications were rare, occurring but five times in two hundred and fifty cases. Of these, three were cases of epididymitis; one of cystitis, and one of prostatitis; while in three hundred and fifty-two cases treated by other methods, epididymitis alone occurred in sixteen per cent. of the patients. Hot retrojection has proved a most valuable procedure in the treatment of chronic urethral discharges. Eight cases, in which the discharge had persisted for several months, were relieved after one treatment. Cases are occasionally encountered, however, which will not yield to these methods. In all such the urethra is found to be the seat of one or more strictures, which render its walls rigid and inelastic, thereby preventing the free circulation of the fluid within its cavity. (Therapeutic Gazette, Aug., p. 547.)

Gonorrhœa in the Female. — Noeggerath (*Deutsche Med. Woch.*) concludes a recent paper on this subject with an enumeration of the signs by which chronic gonorrhœa may be recognised. These are, he asserts: (1) A woman, previously healthy, is attacked with pelvic troubles soon after marriage, her general health frequently suffering to an extent not explicable by the slight changes observed in the sexual organs. (2) She has a purulent discharge, not depending upon the presence of an existing erosion, sarcoma, or carcinoma; or there may be a scanty glairy discharge from the bright red, eroded cervix. (3) There is a catarrh of the ducts of the vulvo-vaginal glands. (4) Small acuminated condylomata are seen around the vaginal outlet; there may be a ring of them just above the anal orifice. (5) Granular viginitis is present. (6) Evidences of peri-salpingitis or ovaritis, the latter being of the glandular variety. It is important, the writer adds, that several or all of these symptoms should be combined; a single one has no diagnostic value. (American Journal, April, p. 438.)

Inherited Syphilis.—*The Earliest Symptoms of.*—Miller, principal physician in the Foundling Hospital at Moscow, in an analysis of these, directs particular attention to fissures of the lips, especially of the upper. Parrot indeed regards such as unmistakable proofs of hereditary syphilis. Actually, Miller observes, rhagades of the upper lip in syphilitic infants form a very frequent and early manifestation. The musculus orbicularis oris by its contraction throws the mucous membrane into folds at each act of suckling, and the epithelium covering them in con-

sequence of friction and maceration is destroyed, particularly on the upper lip, on which these folds are, as a rule, more strongly developed. The very earliest chaps on the upper lip are generally two, placed symmetrically on either side of the central portion. The upper lip is composed of three parts—two lateral, and a central portion; at the spots where these unite, two minute furrows are to be seen in infants, and it is here, in these symmetrical folds, that the earliest syphilitic fissures occur. Relatively rarer are the fissures in the under lip. When such do occur, one forms in the first instance in the very centre, in the fold which indicates the point where the two parts from which this lip was formed are united. Fissures in the situations indicated should serve as tolerably certain proofs of inherited syphilis. They are extremely obstinate, and tend to extend. The individual cracks frequently run together, and give rise to very large ulcers. They are also very painful, render suckling difficult, and rapidly cause wasting. When they heal, white, glancing, minute scars persist for long—in these there is evidence long after of past syphilis. (Edinburgh Med. Journal, July, p. 79.)

Inherited Syphilis.—Based upon the statistics of the Moscow Foundling Hospital, Miller has made a study of hereditary syphilis, and now (*Jahr. der Kindrheil*, 1888) gives us the deductions from his observations. Among 1,000 cases of congenital syphilis the various symptoms were met with in the following proportions: Papules of the skin or mucous membranes, 74 per cent.; rhagades of the lips and anus, 70 per cent.; rhinitis, 58 per cent.; ulcers of the hard palate, 52 per cent.; macules, 45 per cent.; chronic lymphadenitis, 29 per cent.; ulcers of the tongue, 27 per cent.; pemphigus, 25 per cent.; onychia and paronychia, 23 per cent.; excoriations, 20 per cent.; laryngitis, 17 per cent.; pseudoparalysis of the extremities, 7 per cent.; ulcers of the skin, 4 per cent.; gingivitis ulcerosa, 4 per cent. Most of the children were extraordinarily thin and atrophic. The umbilical stump, instead of falling off as in healthy children, on the fourth or fifth day, does not fall till the second or third week, and inflammation of the navel is proportionally more common. The disease makes its appearance in the first month in 64 per cent. of the cases, and in the second month in 22 per cent.; most often in the third week, then in the second and fourth week. The earliest symptoms of hereditary syphilis are rhinitis and pemphigus. (N.Y. Med. Journal, July 28, p. 111.)

Late Hereditary Syphilis.—At the New York Academy of Medicine, on March 15, 1888, Dr. E. L. Keyes said he had not seen what could truly be called late hereditary syphilis, although

he had seen cases in which it was alleged that the late symptoms for which the patient was under treatment had been the first to appear. In his own cases in which late symptoms had appeared he had been able, on close questioning, to draw from the parents or friends a history of early symptoms, or to find old lesions, such as cicatrices of the mucous membranes, or a keratitis, &c. He could recall three or four cases in which persons who had had early symptoms of hereditary syphilis had also maintained late lesions after the age of twenty-one, but in none of them had the symptoms appeared after the twenty-fifth year. As bearing indirectly upon the question under discussion, the speaker remarked that syphilis was a disease full of variety and irregularity. He thought this depended largely upon the soil in which it was planted. It was usually a serious disease in young people, because the soil was succulent, and it was hard to suppose that a child which was born with syphilis could go to a late period of life before showing any manifestations of the disease. In aged people, on the contrary, the disease had, in his experience, proved a light affair. He incidentally referred to the treatment of hereditary syphilis manifested in infancy, That which he recommended was with bichloride of mercury, given in doses of one fiftieth grain, every two hours at first, and perhaps every four hours after the symptoms had yielded. (Ibid., June 23, p. 687.)

Late Hereditary Syphilis.—At the New York Academy of Medicine, on March 15, 1888, Dr. R. W. Taylor said his conviction was firm that, although hereditary syphilis was more erratic in its course than the acquired form, yet in cases in which late lesions had developed they had been preceded by some symptoms in infancy. The early manifestations might, however, be so ephemeral, light, or slightly destructive in action as not to have led to a diagnosis. When a history of early symptoms could not be elicited, it was due either to the obtuseness of the patient or of his relatives, or to the physician's not prosecuting his inquiry thoroughly enough. The speaker thought it hardly required an apology for him to state his title to having, in America, brought the subject of the bone lesions of syphilis out of the great slough of ignorance, called scrofula, as he had done in his book in 1876. He was alone responsible for what had appeared on this subject in Bumstead and Taylor's work, and he had attempted there to express his ideas clearly to the effect that, while hereditary syphilis might give rise to lesions even after the twenty-first year, yet after that period the surgeon was treading on uncertain ground, and was likely to attribute to hereditary syphilis lesions which were the result of the acquired form; he wished to caution against such an error. Undoubtedly many of the cases supposed to be tubercular syphilides or late hereditary

syphilis were really cases of lupus. While the fact could not be controverted that lesions of hereditary syphilis might occur after the age of maturity, yet when that period had been reached the surgeon was on *terra incognita*. The speaker expressed surprise at Dr. Keyes's statement that syphilis in old people was a light affair. For his own part, he had found it one of the greatest scourges in this class of subjects; it complicated and aggravated nearly every bodily ailment which they might acquire. (New York Medical Journal, July 28, p. 111.)

Myositis Syphilitica.—Myositis syphilitica has been found by Neumann (*Vrtljschr. f. Dermat.*, 1888) to affect the sphincter ani more frequently than any other muscle, and at an earlier stage of the disease, and to give rise to much greater pain and disturbance of function. Its symptoms are pain and tenesmus during and after defecation, which may in severe cases last for hours. The pain is aggravated by pressure from without. Women are more often subjects of the disease than men. The whole muscle is not affected; sound bundles of fibres may be found among the diseased ones. Both the blood vessels of the perimysium and the nuclei of the sarcolemma are involved in the inflammatory process. As the affection of the sphincter may last long after the other symptoms of syphilis have disappeared, we may have to treat the contraction of the muscle and the consequent pain by sphincterotomy. In the tertiary stage of syphilis, symptoms of paralysis of the muscle are more prominent, the sphincter being incompletely closed. (Ibid., July 28, p. 111.)

Suppurating Venereal Buboes.—*Treatment.*—During the last five years Szadek (*Vierteljshr. Derm. und Syph.*, 1888, Heft 2, p. 209) has met with 1,084 cases of soft chancre in the military hospital of Kiew, and among these there were 274 buboes, or about one bubo to every four chancroids. The seat and virulence of the sore determined chiefly the inflammation of the glands, and this was noticed particularly with sores located on the frenum and on the inner side of the prepuce. The right inguinal glands were affected one hundred and five times, the left one hundred and thirty times, and both sides thirty-eight times. The double bubo came most frequently with the sore on the frenum; otherwise the location of the sore seemed to have little influence on the site of the bubo. The sore seemed to heal very quickly after the development of the adenitis. The following is the author's plan of treatment:—If there is only swelling of the glands without fluctuation or redness of the skin, rest, and antiseptic treatment of the ulcer; if only redness, compresses of carbolic acid solution until the abscess is ready to open. Attempts at causing the resorption of the bubo by such means as painting with iodine are of no use, the only effect being a

quieting of the pain and a slower development of the abscess. Under chloroform the bubo, when ripe, is to be opened parallel to Poupart's ligament the whole of its length, strict antiseptic precautions being employed, the pus removed, and the diseased glands dug out with the finger, the remnants being scraped out with the curette. The cavity is then to be washed out with sublimate solution, powdered with iodoform, filled with iodoform gauze, and put up in impermeable dressing. The latter consists of a few layers of sublimate gauze and salicylated or sublimated wadding, then a ball of jute, then rubber (Macintosh) sheeting, and a spica bandage. This is left from two to five days as a rule, then removed, the wound edges washed out with sublimate solution, powdered with iodoform, and dressed dry. This dressing is left on from five to ten days. Usually after the second to the fifth dressing, or from the tenth to the forty-fifth day, on an average the thirtieth day, the wound is healed. Complications, except slight erysipelas in five cases, were not encountered in the 274 cases treated, and this was of little influence upon the course of the healing. The scars were always linear, smooth, and, after a time, hardly perceptible. (Ibid, p. 110.)

Syphilis in Children.—*Its Treatment.*—Widerhofer remarks that of children who are born with congenital syphilis, especially if they are born prematurely, 99 per cent. die if they are not nourished at the breast. The danger of infection from those who are born with syphilis is far less than from those who have acquired it, and for this reason the author does not hestitate to place such children with a wet-nurse, if the nurse is informed beforehand of the degree of danger to which she is exposed. In the way of medication, he prefers the use of three fourths of a grain of calomel and one sixth to one third of a grain of the saccharated carbonate of iron two or three times daily. Treatment by inunction should never be practiced with children under one year of age, and very infrequently and circumspectly with those who are more than one year old. Good results have been obtained by the author with subcutaneous injections, Bamberger's sublimate peptone being used, in doses of one sixth of a grain. This should not be continued if it produces nodules in the skin, and one must be very particular that the preparation is a fresh one. Sublimate baths are also recommended, and have been found very efficient, fifteen grains of sublimate being used to three hundred litres of water. External lesions may be treated by applications of sublimate, or the condylomata may be sprinkled with calomel, and then washed off with chlorine water. In affections of the nose, which should be watched with great care on account of possible complication in suckling, local applications may be made with a one per cent. ointment of yellow precipitate. A child with hereditary syphilis should be

kept under observation for at least a year, and should be seen every fourteen days. Afterward the treatment should be resumed should there be the slightest evidence of its reappearance. (Ibid., Sept. 15, p. 305.)

Syphilitic Eruptions.—*Rapid Removal of.*—In private practice it is very desirable to effect as speedy a cure as possible of the tell-tale eruptions on the face, wrists, neck, and other visible surfaces, since their probably syphilitic character may be guessed by friends, more especially those who have themselves gone through the same ordeal. In the Lock Hospital there was an ointment used for erythematous, papular, and scaly eruptions, which, on account of its rapidly curative effects, used to be called by the patients "the magic cream." Its composition was as follows: one part of ammoniate of mercury and three parts of oxide of zinc, mixed and rubbed into a fine powder, with sufficient glycerine and lard to make a stiff cream. I have been told that a few drops of olive oil facilitate the mixture of all these. It is really astonishing how a few applications of this will make a very perceptible rash disappear in a few days. A ready method of preparing the above is by mixing one part of the ammoniated mercury ointment with three parts of zinc ointment, each being fresh, and adding a little glycerine. (Mr. F. W. Lowndes, Liverpool, Lancet, May 26, p. 1018.)

Syphilitic Glossitis.—*Treatment.*—The most common syphilitic affection of the tongue is chronic glossitis with cracks in the tongue—which is well recognised as the result of secondary syphilis. You see the loss of epithelium in the centre of the tongue, and round the sides you see a cracked, cicatrised tongue. Those deep cracks, sometimes running quite far into the tongue, are as characteristic as anything you can have of secondary syphilis. The question arises, in the case of such a tongue as I have described, will you give mercury or iodide of potassium? Certainly, in a tongue like that you had better give small doses of mercury. It is true the patient may have had mercury before; but I find that these patients do better with small doses of mercury—which you can, if you like, combine with iodide—in the form of biniodide, or you may give it separately as liquor hydrargyri perchloridi. The thing I lay most stress on, however, is the local application of mercury. These tongues do well if you only pickle them in mercurial lotion. It is of no use to tell the patients to use a mercurial mouth-wash and then spit it out. They should be told to hold it in their mouths ten minutes by the watch, and breathe through their noses, so as to get the tongue thoroughly pickled with the lotion. As to the strength of the lotion, I advise you to begin with a quarter of a grain (afterwards getting a little stronger) of perchloride of mercury, with a little

honey to make it more palatable, in an ounce of water. If the process of "pickling" is repeated twice or three times a day, the effect produced on the tongue is astonishing; the ulcers will heal under the mercurial treatment, the tongue will cicatrise, and the patient will recover a perfectly useful tongue, in which there will be no risk, so far as I know, of any future development of epithelioma. It is longstanding diseases that develop into epithelioma; but if you cure the disease and make the tongue healthy, or comparatively healthy, the patient will be no more liable to epithelioma than any other person. (Mr. Christopher Heath, Brit. Med. Journal, April 21, p. 833.)

AFFECTIONS OF THE EYE AND EAR.

Adenoid Growths of the Naso-Pharynx.—*Their Relation to Middle-Ear Disease.*—Dr. Clarence J. Blake, of Boston (*Boston Med. and Surg. Journal, March*, 1888), calls attention to the important train of symptoms which come from the presence of adenoid growths in the naso-pharynx of children. They are such as would result from interference with the normal ventilation and nutrition of the middle-ear tract, and are more or less permanent, according to the duration and size of the adenoid growths. In the earlier stages, when the growth is small, the ear is noticeably affected only when, in addition to the bulk of the growth in the naso-pharynx, there is added swelling of the mucous membrane of the region in a head cold. As the growth increases, a less swelling occasions now comparatively greater disturbance, and the intervals of freedom from impaired hearing, nocturnal earache, and subjective noises in the ear, become shorter and rarer. In the meantime, changes are taking place in the structure of the middle ear, which are more or less permanent. The membrana tympani is retracted, the tendon of the tensor tympani is relaxed, the mucous lining is thickened, the ossicles become more or less ankylosed, the nutrition of the middle ear is lowered, and ulceration and suppuration are easily set up. The aural symptoms in such cases may be divided into three classes. *First*, those in the earlier stages, with some earache and impaired hearing, with a cold in the head. These are always improved—i.e., cured, under proper treatment of nares and middle ear. The *second* class are the more advanced cases of the above, due to neglect. The hearing is greatly and persistently impaired, and the child regarded as a mute or an idiot. In many of these cases, the air douche failing, it has been found that catheterisation of the Eustachian tube has decidedly and immediately improved the hearing, and entirely changed the objective symptoms in the ear, the membrana tympani, previously dull in colour and in lustre, returning to

the normal appearance in a greater or less degree in both respects. To the *third* class belong those cases already alluded to, in which suppurative otitis media is a result of the disease in the naso-pharynx, set up at last by some local exciting cause. These cases can be cured only after the adenoid growths are removed. (American Journal, May, p. 530.)

Adenoid Disease.—Naso-Pharyngeal.—In the discussion on this subject, in the Otological Section of the British Medical Association, Glasgow, 1888, Dr. Walter Wolston (Edinburgh) said that a very large percentage of the deafness now existing in Great Britain—his experience would venture to say above 75 per cent.—was due to the presence of adenoid vegetation in the naso-pharynx. Were the general practitioners alive to the existence, symptoms, and facility of removal of adenoid growths, countless drumheads might be saved, and lives secured from being embittered by deafness. The operation for removal of adenoids had been called a "minor" one, and so it was from one point of view, and easy to a skilled hand, but its results were so brilliant that it should be thoroughly done. To effect this he thought an anæsthetic was necessary. Were the deaths under chloroform for the operation compared with those occurring in other greater operations, he doubted if any remarkable mortality would be found to exist. He thought it was of great importance to have the patient completely narcotised, carefully gagged by an assistant, and by suitable straps rendered incapable of struggling. He used Loewenberg's forceps to clear the larger masses, and then, with the finger-nail, completely scraped out the choanæ, vault, and pharynx, and various crypts and recesses of the post-nasal space, paying particular attention to the little cushion that almost always lay just above and pressed on the extremity of the Eustachian tubes. The finger-nail alone would not suffice in all cases, as in those above seven years of age the growths, often of a fibrous character, which sprang from the posterior wall of the pharynx, were so embedded in the normal tissues that a considerable amount of a cutting wrench with the forceps was necessary. This action he often supplemented by placing the forefinger of the left hand just below the mass, which prevented the pharyngeal wall being too much pulled on. It was well to reduce the posterior turbinated bodies if they were very large, and this he did by the galvano-cautery loop passed through the anterior nares. The removal of even small masses of tissue would often give remarkable results, in proof of which he related the following case: A young lady, aged 27, contracted a severe catarrh, accompanied by intractable sneezing, which lasted ten days, but was subdued immediately by a 4 per cent. spray of cocaine. Deafness for two months was complained of, and did not give way to the

air-bag. Examination showed the pharyngeal tonsil to be very turgid and impinging on the tubes. Under chloroform he removed tissue only the size of a horse-bean. Within a week she heard as well as ever, and at the end of three months quite twice as well as before, and, in addition, found that she had gained three semitones in her singing voice, now reaching A-flat, whereas F had been previously her highest note.—Dr. Barr (the President) thought the men who brought this subject up before the profession, such as Meyer, Guye, and Loewenberg, had performed a most important service to aural surgery; indeed, the discovery of these growths as sources of ear disease marked an important epoch in the development of the knowledge of ear disease. There was no doubt that these growths were very frequently met with in Scotland, and were most important causes of ear disease. In their operative treatment Dr. Barr employed finger nail, artificial steel nail. and Loewenberg's forceps, or modifications of them. He preferred, as a rule, the steel nail and the forceps to the finger-nail. The latter was not sufficient to remove the tough growths, and was not so cleanly a method as instruments. Dr. Barr frequently employed first the forceps, and then finished with the artificial nail. The introduction of proper forceps into the naso-pharynx was less painful than the finger, but the sensitiveness varied very much in different persons. Local application of cocaine was very useful, but it was well to avoid chloroform, although in very nervous children this anæsthetic was necessary. If chloroform was employed, the head should be placed well down, so as to avert the possibility of blood entering the windpipe. One operation was not usually sufficient to completely clear out the vegetations, and three or four might be necessary before a smooth condition of the mucous membrane and a permeable state of the nasal channels were secured. (British Med. Journal, Sept. 1, p. 488.)

Boils in the Ear.—*Treatment.*—Dr. Grosch (*Berliner Klin. Wochens.*, April 30, 1888) has found that a solution of acetate of alumina, one part to four of water, will act most promptly in aborting furuncles in the external auditory canal. The canal should be filled with the above solution every hour, and a piece of cotton placed in the meatus to retain the fluid in the canal. The pain is said to be partly quelled in four hours, and entirely removed in eight hours, by this treatment. Its action is explained thus by Dr. Grosch: The acetic acid possesses the property of distending the tissues, without destroying their continuity, and also of penetrating deeply into them. The loosening thus brought about produces the desired relief to pain by removing the pressure from the terminal nerves, and, with the disinfecting power of the solution, brings about the desired cure by destroying the elements of infection. (Amer. Jour., July, p. 89.)

Conical Cornea.—At the Academy of Medicine at Paris (*Centralb. Prakt. Augen.*, May, 1888) M. Panas showed in M. Kalt's name a series of glass shells which the latter has employed with advantage in the treatment of keratoconus or conical cornea. These shells are of various curvature, and are applied directly to the surface of the cornea, by which they are well borne for many hours consecutively, the slight irritation they at first produce soon passing off. They follow the movements of the eye, and adhere to the cornea firmly by atmospheric pressure. If the curvature of the shell be well chosen, the projecting state of the cornea can be reduced till the eye becomes almost emmetropic, and the sharpness of vision can be improved to a material extent over the whole field of vision. Thus in one instance the patient, who before this treatment was commenced could scarcely count fingers at the distance of half a metre, was able after it had been practised for some time to recognise test types one inch high at a distance of sixteen feet. A similar method was suggested by Fick in the *Archiv Augenheilkunde* for the present year. (Practitioner, Aug., p. 139.)

Empyema of the Antrum of Highmore.—*Treatment.*—I do not think that Stoerk's suggestion to treat these cases by the introduction of a tube into, or, if this be impossible, up to the natural opening between the antrum and the nose, and thus to irrigate the cavity, is at all advantageous. Manifestly this line of treatment, even if in the end successful, must entail so much time and trouble as to weary the average patient. No doubt the establishment of a counter-opening is more scientific and satisfactory. Such a counter-opening may be made through the socket of a tooth, through the alveolar process, or finally through the outer wall of the nose near its floor, as suggested recently by Mikulicz. After a free drain has been established, irrigation of the antrum must be undertaken, and continued until the case is cured. For injection, such fluids as boracic lotion, or water containing small quantities of iodine or chloride of zinc, may be used, according to the indications afforded by each particular case. Whether the insufflation of powders in addition (boracic acid, iodoform, &c.) would prove more rapidly effectual I am not yet prepared to say. (Dr. McBride, p. 329.)

Granular Ophthalmia.—*Treatment.*—Abadie recognises two factors in the pathogeny of severe granular conjunctivitis:—1. The presence of the microbe; and 2, the state of the tissue in and on which it develops. The accessory factors are:—The state of the adjacent parts, lacrymal passages, palpebral fissure, and the reaction of the general nervous system of the individual. For some time past he has in rebellious cases combined systematically daily scarifications of the conjunctiva with cauterization. If

there is great local irritation and marked nervous reaction, he begins by applying leeches to the temple. Then he instils a solution of cocaine, and, after anæsthesia has been produced, he makes slight scarifications in the conjunctiva with Desmorres's instrument, beginning usually with the superior *cul-de-sac*. The parts are allowed to bleed freely, and are subsequently cauterized with the glycerole of copper. This treatment is repeated daily, and gradually the conjunctiva becomes thinner, less red, more elastic, the pannus gradually disappears, and the infiltration of the underlying and neighbouring tissues slowly recedes. (N. Y. Med. Journal, Aug. 11, p. 161.)

Immature Cataract.—*Extraction of.*—The general idea is that a cataract is mature when the whole of the lens matter is opaque, and when the iris, by focal illumination, throws its shadow on the opaque lens. This, no doubt, is a mature cataract from a pathological point of view, but by no means from a clinical or surgical one. Experience has shown that in certain kinds of cataract, in which part only of the lens is opaque, nevertheless on extraction the whole of the lens matter readily leaves the capsule *en masse*. I have recently successfully extracted cataracts in several well-selected cases in which vision was $\frac{6}{6}$ or more, and in which the fundus could be distinctly seen. The cases of this kind most frequently seen are cases of typical nuclear cataract, in which the nucleus becomes opaque long before the cortex of the lens is affected, and in which, both by focal illumination and by ophthalmoscopic examination, the opaque nucleus is seen to be distinctly defined from the clear cortex. Of course, in time the cortex also becomes opaque. I have operated in cases in which the posterior part of the cortex gradually becomes opaque, whilst the other part of the lens remains clear; also in cases of cortical cataract, mostly in young people from twenty to forty, in which are found peculiar punctate and striated opacities in the otherwise clear cortex. In these latter cases discission is generally performed, and mostly with bad results. In cases in which the cataract is not mature, from a surgical point of view, and in which it is of great importance to the patient to have the cataract removed, the best and safest method seems to me to be to perform a preliminary iridectomy, followed by Foerster's method of maturing cataracts. In this manner one can in most cases make the cataract mature for extraction in a few weeks, and there is no risk of part of the lens matter remaining in the eye and causing iritis, &c., or loss of vitreous, as there undoubtedly is if any other course of operation is pursued. (Dr. Adolf Bronner, Bradford, Lancet, June 23, p. 1245.)

Mastoid Process.—*Method of Opening to Relieve Chronic Middle-Ear Suppuration.*—As to the method of opening the mastoid, I

am strongly of opinion that it should be done as close to the meatus as possible, and, by working towards the antrum, on the accepted anatomical data—that is, using either spina supra meatum or the upper wall of the meatus as a guide to the highest point of the osseous opening—by means of a hammer and gouge. Indeed, I cannot but think that trephines and borers are hardly justifiable. That a measure of success attends their use seems to me to show that, in the majority of cases, the layer of solid bone which has to be penetrated is not deep. My chief objection to their use is that, if the lateral sinus be wounded, the danger is not detected immediately, as in cases where the gouge is used, and irreparable mischief may result. (Dr. McBride, British Med. Journal, Sept. 1, p. 476.)

Mucous Catarrh of the Middle Ear.—*Treatment.*—Though I do not wish it to be understood that I regard every case of tympanic catarrh as the result of morbid conditions of the naso-pharynx, I am decidedly of opinion that the great majority of such affections are so produced, and I hold strongly that it is the duty of every practitioner, when consulted in cases of impaired hearing, to make a careful and complete inspection of the naso-pharyngeal cavity. It is before him that patients present themselves in the early and, as I believe, curable stages, and he incurs a grave responsibility if from ignorance or incapacity he is unequal to their due recognition and suitable treatment. In most of the cases of chronic enlargement of the tonsils, and in the adenoid growths of the vault of the naso-pharynx occurring in young people, mucous catarrh of the middle ear may be suspected; whilst nasal polypi, hypertrophic rhinitis, and granular pharyngitis, generally lead to it in the adult. If, on inspecting the membrana tympani there be found much indrawing, and if tinnitus be also complained of, treatment should be directed towards restoring the permeability of the Eustachian tubes, and permitting ventilation of the tympanum by means of the air douche. This is accomplished by Politzer's inflation through the nostrils only, or by means of the Eustachian catheter; and it is of the utmost consequence that the ordinary medical attendant should be practically acquainted with the proper performance of these methods, for they form a most important part of the treatment of these affections in the early stages. In the deafness of children and young people, Politzer's method of inflation is sufficient without the catheter. and in order to make the introduction of the nozzle less uncomfortable, I generally employ a cone of thick indiarubber, such as is recommended by Woakes for sniffing up solutions through the anterior nares. It is not desirable to ask them to swallow water, which, if used, is not unfrequently sputtered over their breast and the operator's arms, and seldom carried into the pharynx when the signal is given

for doing so. A better plan in older children and young people is Gruber's method, which consists in asking them to repeat "*hook*" at the moment the bag is compressed, for they find it easier to pronounce than to swallow at the word of command. I need scarcely add that whatever mode of inflation is employed, the diagnostic tube should always connect the patient's ear with his own to verify or contradict his statements. (Dr. Hunter, Edinburgh Med. Journal, April, p. 911.)

Ophthalmia Neonatorum.—Korn (*Arch. Gynäkoloi*) is of the opinion, from his own observations, that the infection of the eyes of babies probably does not take place while they pass through the vagina, but later, and is artificial, and due to unsatisfactory cleansing. In fact, the eyes of the babe are sufficiently protected to make the entrance of mucus into the conjunctival sac almost impossible. Only a face presentation might favour this accident. Hence he thinks it possible to dispense with the nitrate of silver in these cases. The baby is to be carefully washed with water, without paying any attention to a previous cleansing of the parturient mother. The results were equally good with this method, as soon as the nurse became accustomed to scrupulous compliance with the orders. Out of one thousand babies treated in this manner, only 0·4 per cent. were affected during the first four days of life by purulent ophthalmia. In summing up the results of his experiments, he formulates the following propositions: 1. Credé's method of preventing purulent ophthalmia is absolutely certain and trustworthy when applied in the proper manner. 2. The active part in Credé's method is the nitrate of silver, which is a specific against the gonococcus. 3. The infection of the baby's eye with the poison does not take place in the vagina, but always after birth. 4. The most scrupulous cleanliness during birth and the puerperal state is sufficient to reduce the affections of the eyes to a minimum, and most probably can prevent them altogether. 5. The method is very simple and can be learned by any nurse. (N. Y. Med. Journal, Aug. 11, p. 161.)

Otitis Media.—*Iodol in.*— Purjesz (*Centralb. Therapie*, April, 1888) has employed iodol in eighteen cases of otitis media, some of which were chronic, and others acute, and has been well pleased with his results. In the acute forms the discharge ceased in a few days (as it does under the use of many other drugs, Rev.), and in the chronic form in a comparatively short time. The iodol was applied once daily, and, notwithstanding its slightly irritant properties, was well borne. In two cases it had to be stopped. Iodol does not seem to be nearly equal to iodoform, however, and, notwithstanding the disagreeable odour of the latter, the former will not readily supplant it. (American Journal, July, p. 91.)

Otitis Media Chronica, Purulent.—Use of Lactic Acid in.—Dr. Victor Lange (*Ibid*), encouraged by the use of lactic acid in tubercular laryngitis, has employed fifteen to thirty per cent. solutions of lactic acid in uncomplicated, chronic purulent otitis media. Stronger solutions are used as the tolerance of the ear increases. The drug is applied either on cotton pledgets soaked with the solution, or a few drops are instilled into the ear. The stronger solutions are suitable for those cases in which considerable thickening of the mucous membrane and prominent granulations are present. The treatment is soon followed by a diminution of the secretions and a disappearance of bad odour. Small, soft, and vascular granulations shrivel very soon, but tough ones resist for some time, even concentrated solutions of lactic acid. This acid seems to possess no hæmostatic properties, nor is it adapted to the treatment of acute forms of otitis. (American Journal, July, p. 92.)

Otorrhœa.—*Treatment with Powdered Boric Acid.*—Dr. L. Stacke, of Erfurt (*Deutsche Med. Wochens.*) very justly claims that in some cases of acute otitis media, after either spontaneous or surgical perforation of the membrana tympani, the insufflation of boric acid in powder, or of any other powdered substance, is not well borne by the inflamed mucous membrane of the middle ear. Antisepsis of the middle ear in acute suppuration cannot be carried out like antisepsis elsewhere in the body, on account of the resentment shown by the mucous membrane of the tympanic cavity to the ordinary antiseptic fluids. Insufflations of boric acid in powder act best in large perforations of the membrana tympani, because they can then better reach the diseased mucous membrane, and there is also less danger of clogging the drum cavity and engendering retention of pus. In perforations of the membrana flaccida or Shrapnell's membrane, with purulent disease of the attic of the tympanic cavity, powder insufflations are insufficient treatment. In such cases the tympanic syringe must be inserted into the perforation, and the attic washed out with carbolic acid solutions ($2\frac{1}{2}$-5 per cent.), or with peroxide of hydrogen, and *not* by means of syringing from the meatus, as the writer suggests, after "widening the perforation with the galvano-cautery." If this will not meet the indications, the carious malleus may be excised. Insufflations of powdered boric acid accomplish most in those cases "with little secretion; large perforations in the membrana vibrans; smooth, ungranulating mucous membrane; and absence of disease of the bone, or any symptoms of retention of pus." (American Jour., April, p. 421.)

Otorrhœa, Chronic.—Treatment.—Amongst the common ear affections for which the practitioner's advice is sought is chronic otorrhœa. Either as the result of inflammation conveyed

through the tubes in the naso-pharyngeal affections of the exanthemata, or from an acute tympanic inflammation becoming chronic in those of strumous habit, it is at once the most important and the most neglected. It is unnecessary to recall the close anatomical relations the tympanic cavity has to the brain and cerebral vessels; and if the public are not now cognisant of the risks of neglecting such cases, it is not from want of words of warning from the profession. The treatment of such cases is, I fear, rather routine, the use of an antiseptic or astringent lotion being all that is enjoined. Now, in the great majority of such cases this is insufficient; for inspissated pus and secretions are allowed to remain in the tympanic cavity, and becoming there decomposed, give rise to that disgusting odour which has always appeared to me *sui generis*, and is probably the result of the growth of some special bacterial form. While syringing with antiseptic or astringent lotions, insufflation of impalpable powders with similar properties, and the topical application of rectified spirit, are all very well so far as they go, in many instances they will not effect a cure, unless combined with Valsalva's or Politzer's inflation, which both cleanses the tympanic cavity and prevents adhesions between the promontory and membrane. My own experience has not been so satisfactory with the "dry method," as it is termed, for crusting and retention of discharge, with feeling of tension, have not unfrequently been complained of; whereas warm boric instillations and solutions of carbolic acid and zinc have very generally proved satisfactory. Of the alcoholic treatment recommended by Barr in certain cases I have no experience. The great point to be insisted on, however, is absolute cleanliness and freedom from unpleasant odour, even though only obtainable by syringing three or four times daily. Not unfrequently the patient does not come before the practitioner until troublesome *granulations* and *polypi* have blocked the meatus. In a case which had lasted upwards of ten years, I removed the latter by Wilde's snare, and the former, with the remains of the polypi, by the instillation of absolute alcohol; but though the discharge entirely ceased, and the general health was greatly benefited, hearing power was not much improved. (Dr. Hunter, Edinburgh Med. Journal, April, p. 907.)

Ozæna.—*Naphtholin.*—At the recent Congress of the French Society for Laryngology, Rualt recommended naphthol in the treatment of ozæna. (*Wiener Medizin. Presse.*) He irrigates the nasal cavity, three or four times daily, with the following solution, to be freshly prepared before each application: To a quart of water add a teaspoonful of a solution of equal parts of biborate of sodium and bicarbonate of sodium, and a teaspoonful of a solution of beta-naphthol, 12 parts, in alcohol (90 per

cent.) 84 parts. In obstinate cases, in addition to the preceding, cotton tampons saturated with the following, are introduced into the nares for fifteen minutes; beta-naphthol, 12 parts, tincture of quillaya 88, distilled water, 400. The advantages of this treatment are the rapid disappearance of the odour and the decided diminution in the secretion. The only objection to naphthol is a slight burning, occurring immediately after its use, but soon disappearing. (Medical News, July 28, p. 102.)

Persistent Perforation of the Membrana Tympani.—*Photoxylin Solution as a Means of Closing.*—L. Guranowski (*Archiv Ohrenheilkunde*) has employed a twenty per cent. solution of photoxylin, in five cases of persistent perforation in the membrana tympani, to close the perforation. The ear is first syringed with a boric acid solution and then dried with absorbent cotton. Then, under good illumination of the fundus of the auditory canal, the edges of the perforation are painted with the aforesaid solution. This dries in ten minutes, leaving a pellicle over the perforation. A second application is now made toward the centre of the former perforation from the periphery, and then a third, and others, until the entire perforation is covered with a good layer of photoxylin. The next day this new membrane will be found tight, transparent, and resistent to pressure from a probe, and to inflations by the Eustachian catheter. Guranowski also has applied this solution to flabby cicatrices, which become firm, after having been movable at each act of swallowing. (American Journal, July, p. 91.)

Purulent Ophthalmia of Infants.—*Treatment.*—In the early stages of this disease, Mr. Owen (*Birmingham Med. Review*) recommends antiseptic treatment from the outset, washing the conjunctiva every hour with a weak carbolic lotion, 2-3 grains to the ounce, or a boracic lotion of 5 grains to the ounce, or the following—boracic acid 40 grains, liq. hydrarg. perchlor., 1 ounce to water 8 ounces. An ointment of iodoform, 5 grains to vaseline 1 drachm, must in any case be freely applied to the eyelids. If the disease has assumed a severe form, and is more advanced, antiseptic lotions with nitrate of silver solution, 15 grains to water 1 ounce, is advised. If there be any loss of transparency of the cornea, a solution of sulphate of atropia, 2 grains to water 1 ounce, must be used in addition to the nitrate of silver solution. Prophylactic treatment which will prevent this disease, and so save any need for the methods of treatment above described, is entirely omitted. (Edinburgh Med. Journal, July, p. 89.)

Reflex Aural Cough.—Among the slighter forms of reflex symptoms complained of by patients which specially come under my notice is that of ear cough, which can in a large proportion

of cases be readily induced by neglecting to warm the aural speculum before its introduction. Pathologically (if I may so use the word) it may be caused by the cerumen being present in an unduly dry condition, and thus, lying loosely in the meatus, it is readily moved by the movements of the lower jaw; or it may become adherent to the hairs towards the outer end of the meatus, and, being easily moved, irritates the walls of the passage, giving rise to a reflex laryngeal irritation resulting in cough. This result is rare when we consider the many cases in which the ear wax is abnormally dry, and therefore loose, in the meatus, but we do occasionally have such a result, and the dry cough is then usually spoken of as a "stomach cough," on account, as I take it, of the absence of other signs of lung affection, and also because, in the same way as we have reflex laryngeal phenomena from aural irritation, we may have reflex laryngeal irritation from gastric disturbance. A similar complication may accompany the presence of a foreign body in the ear, a fair number of such cases having been published from time to time. The late Mr. Toynbee quotes a case where "an intractable cough ceased at once on the removal of a small piece of dead bone from the external auditory meatus." A similar case occurred in the practice of Politzer, and he, in his "Text-book of Diseases of the Ear," quotes two or three cases where similar as well as more serious reflex phenomena were dependent on the presence of beans in the external auditory meatus. Amongst cases of foreign bodies in the ear with which I have had to deal, two were accompanied by the reflex cough. The first, a boy six years of age, had himself introduced a small piece of slate pencil into the meatus, from which he could not dislodge it. His parents were alarmed on account of the frequent fits of coughing with which he seemed to be so suddenly seized, and on taking him to task he described what he had done, and he was brought to me some thirty-six hours after the introduction of the pencil. It was readily seen and removed, its removal being followed by complete relief from the cough. The second was the case of a gentleman, who, taking part in the general scrimmage which usually accompanies the departure of a newly-married couple, had a handful of rice thrown at him, two grains of which entered his right meatus. This was followed by intense pain, but he, knowing the cause, thought it would pass away in the course of a day or two, and to relieve the pain, instilled a few drops of laudanum at intervals. At the end of a week he called on me. The pain had almost entirely subsided (troubling him only during mastication), but he had now a constant tickling cough, which would come on suddenly even when quietly sitting in his office. On examination evidences of a recent myringitis were visible; the walls of the meatus were

slightly inflamed, and the swollen grains of rice were lodged close up to the membrane. These were removed with the aid of the syringe, soothing drops were prescribed, and from that day the cough entirely disappeared. (Dr. J. Walker-Downie, Glasgow, Lancet, June 16, p. 1179.)

MIDWIFERY AND THE DISEASES OF WOMEN.

Cæsarean Section.—*Results.*— The operation of Cæsarean section has reached such a degree of perfection that I believe it is safer for the mother than *difficult* extraction through the natural passages. While we rarely see a considerably flat pelvis here, there is a form which is by no means rare, that is, a pelvis with a moderate general contraction with male type. In such cases I have several times had to perform very difficult operations resulting in the loss of both mother and child. Still, we shall have to wait yet and see the result of the Cæsarean operation, since it has been surrounded by all the safeguards of modern surgery, before we decide to what extent it shall replace craniotomy. So far, the results in this country are by no means satisfactory. Dr. R. P. Harris wrote me recently that there had been 11 Cæsarean operations from December 16, 1886, till February 24, 1888, inclusive of my own, in the United States, all of them by the improved method but one; saving 6 women and 8 children. 6 of the operations were performed in hospitals, saving 5 women, 5 in private practice saving only 1. Of the children, 5 were saved in the hospital cases and 3 in the private cases. All of the 5 hospital cases operated on by the improved method were successful. If we ask why this great mortality has obtained in private practice here as compared with hospital cases here and in Germany, I think I do not err in surmising that the chief reason is to be found in the defective use of antiseptics in private practice. (Dr. Garrigues, American Journal, May, p. 451.)

Carcinoma of Cervix Uteri.—*Diagnosis of in its Beginning.*— Stratz (*Centbl. f. Gyn.*) arrives at the following conclusions with regard to carcinomatous disease of the cervix:—(1) The diseased place is sharply limited by sound tissue, and never goes over into it by degrees; (2) A difference in the level of the whole diseased portion can always be made out; (3) Carcinomatous portions have always a light yellow colour; (4) The malignant deposit is usually shown as finely granular whitish-yellow glistening elevations, at least in individual places. As these characteristics are evident to the naked eye, it is important that all practitioners should recognise them as early as possible, when a surgical operation may be the means of saving the patient's life. (Edinburgh Med. Journal, July, p. 87.

Craniotomy, Induced Labour, Cæsarean Section.—*A Comparison.*—Wyder, of the Charité at Berlin, contributes to the *Archiv für Gyn.* a comparison between these three methods of treatment, which is a most rational plea for due conservatism in assigning a place to the improved Cæsarean section—Sänger's operation. Wyder considers the statement of Credé, that craniotomy on the living child should be superseded by Cæsarean section, as premature, although he admits that under favourable circumstances this is to be expected not far in the future. He quotes the statistics of the policlinics at Berlin and Leipzig, and the Halle clinic, aggregating 215 craniotomies, with a mortality of 5·6 per cent.; the Berlin clinic had a mortality in craniotomies of 13·2 per cent. Regarding the mortality in different grades of contracted pelves, he states that in pelves whose true conjugate was three and a half inches and more, the mortality was fifteen per cent.; with a conjugate between two and three-quarter inches and three and a half inches, mortality ten per cent.; true conjugate between two and one-eighth inches and two and three-quarter inches, mortality nil. It is in the last class of cases that the Cæsarean section is generally performed. The complications following craniotomy were most frequently caused by efforts at delivery with forceps before craniotomy was done. Regarding the induction of labour, 306 cases are cited, mortality 3·9 per cent.; and here, also, the cases in which the pelvic contracture was of the highest degree were without mortality. In comparing these results with those of Sänger's operation, the first fifty cases reported by Sanger are taken; these statistics are criticised, and thought to be collated with an optimistic view of Cæsarean section. Wyder's comparison shows that in contracted pelves the mortality from Sänger's operation is 2·13 times greater than in craniotomy, and 3·37 times greater than the mortality of induced labour. For "relative indications" (not highly contracted pelves) the mortality of Cæsarean section was 7·1 times greater than that of induced labour in highly contracted pelves. Sepsis is the great danger in Cæsarean section, and when it occurs it is to be ascribed to the operation, for the performance of the operation gives the best possible opportunity for septic infection. In summing up his conclusions, Wyder recognises the fact that many cases of labour fall into midwives' hands, or those of practitioners not versed in pelvimetry; they are not, therefore, treated in the most favourable period for Cæsarean section. He considers this operation, like ovariotomy and the removal of uterine myomata, a procedure to be undertaken only in well-equipped hospitals, by skilful operators. In estimating the prognosis of any case of contracted pelvis, the size, hardness, possibility of moulding, and position of the head, and all the other conditions essential for spontaneous

birth, cannot be estimated as early as the time urged for Cæsarean section; the prognosis not only depends upon the degree of pelvic contraction, but upon those factors also. Regarding the child's life, we are to guard it so long as the mother is in no danger, but when she is imperilled her interests only should be considered. In applying Credé's "golden rule" for obstetricians, "What would you do if the patient were your wife, your sister, or a near relative?" Wyder believes that few practitioners would not hesitate to perform Cæsarean section when other methods are available. In forming rules for practice, Cæsarean section is undoubtedly indicated in highly contracted pelves when the patient is found in advanced pregnancy. In the early months of pregnancy the induction of labour is indicated; with antiseptic precautions it is without danger. In contracted pelves of conjugatæ veræ, two and one-eighth inches to two and three-quarter inches, Cæsarean section and craniotomy are direct rivals; the maternal mortality of the fifty cases of Sänger's operation, Wyder estimates at 17·9 per cent.; and he believes that when this mortality shall be reduced to that of craniotomy, in hospitals and localities where Cæsarean section can be readily performed, craniotomy should yield to the Cæsarean section of Sänger. He believes that Cæsarean section will be rarely done in pelves but slightly contracted, and most rarely in primiparæ. Wyder closes with the reiteration of the cardinal points of his paper, and urges the restriction of Sänger's operation to skilled hands and proper hospitals, and that the mother's life should have unquestioned and paramount supremacy. The material from whose study Wyder draws his conclusions was 9000 cases of labour at the Charité at Berlin, and 6000 at the Policlinic Service, material ample enough and favourably situated; he compares the results obtained in Berlin with those of other cities, finding a substantial agreement. (American Journal, May, p. 535.)

Creolin in Obstetrics.—*An Innocuous Antiseptic.*—Kortüm, in the *Centralb. f. Gyn.*, 1888, reports that he has extended his clinical studies in the use of creolin, and now urges a trial of its virtues upon obstetricians. He considers it of especial value for two reasons: it is hæmostatic, it is innocuous. In cases of ruptured perineum he obtained especially good results by placing compresses saturated with a one-half per cent. solution on each side of the stitches, and irrigating the parts freely with the same solution. Perineal wounds so treated healed with less irritation than any he had ever observed. He has also used tampons, saturated with a two per cent. solution of creolin, to check hemorrhage, and found that they could remain for from twelve to twenty-four hours *in situ* without any evidence of decomposition. Creolin does not irritate the hands, and may be given to

nurses and patients for use during the lying-in period without fear of intoxication. (American Journal, April, p. 427.)

Electrical Treatment of Diseases of the Uterus.—Dr. Playfair, speaking on the discussion following Sir Spencer Wells's paper (see p. 395), addressed himself to the following points: (1) The cases in which the electrical treatment was applicable. (2) Its possible dangers. (3) Its application and the difficulties connected with it. 1. The cases in which it has been most talked of were those of fibro-myomata, attended with hemorrhage, and certainly this was its most important and promising application. Now out of the cases of this kind he had treated, most had been benefited: in some the hemorrhage had been entirely checked, but in one or two he was bound to say that no appreciable result on the hemorrhage had followed. It was impossible in such a meeting to enter into details, which he might possibly publish elsewhere, but such was the fact. Perhaps he might fairly say that in three cases out of four the hemostatic results had been distinctly good. The action of the positive current in this way was, no doubt, that of a chemical cautery, and he was inclined to think that the failures were due to the difficulty of bringing the sound, in certain cases, into accurate apposition with the uterine cavity. Some more perfect mechanical appliances in this direction were certainly required. With regard to non-hemorrhagic fibroids, the number in which any interference was needful was very small. Indeed, it was only when pressure symptoms were well marked that it was justifiable to do anything. He had, therefore, only treated two cases of this kind. In one a large tumour had practically entirely disappeared, but with a very serious amount of constitutional disturbance presently to be referred to. In the other, then under treatment, the patient, whose tumour was impacted in the pelvis, and who had not micturated for a long time in consequence of pressure on the urethra, was already able to pass her own water. The cases in which he had found the most remarkable and satisfactory results were those of severe dysmenorrhœa, and bad chronic endometritis, with profuse glairy discharges. In them the results were really very remarkable, and some cases of both kinds, which had resisted years of treatment, had apparently been perfectly cured after only three or four applications of the electro-negative currents. Thus, three cases of intense dysmenorrhœa were treated, the patients writing of themselves as follows: (*a*) after four applications, "entirely free from pain;" (*b*) "quite painless;" (*c*) "hardly any pain." Of the application of the continuous current to absorb inflammatory deposits, and of the faradic current to relieve pain, he had not had sufficient experience to offer an opinion. The faradic current he had found very useful in

restoring the menstrual discharge in one case of amenorrhœa of seven years' standing, in another it had failed. 2. With regard to the alleged dangers, he believed them to have been greatly exaggerated. Dr. Keith's experience was of itself sufficient to prove this. Unquestionably, however, like all potent agents, electricity might do serious mischief if rashly employed by those unskilled in its use. He had only seen two cases in which the slightest irritation or mischief had followed its use. One was a case of pelvi-peritonitis with pelvic exudation, in which he was conscious that he had used it too soon, and a fresh but not serious exacerbation had followed. The other was the case of fibroid above referred to. This was a dense fibro-myoma he had watched for ten years, steadily growing. It nearly filled the pelvic cavity, and reached above the umbilicus. He had made six electro-negative punctures in Douglas's pouch. These were followed by pyrexia, accompanied by a profuse purulent offensive discharge from the uterine cavity at intervals of two or three days. The tumour had entirely disappeared, but the constitutional disturbance had certainly been considerable. That there were certain risks must therefore be admitted; he did not, however, believe them to be prohibitive, and time would probably show us what they were, and how they were to be avoided. 3. As to the alleged difficulties, they certainly were not of a nature to prevent any well-instructed gynæcologist from adopting the practice. He must protest strongly against the statement that had been made that this class of work should be carried out by a professed electrician. Anything more absurd he had never heard. The manipulation of the apparatus, so far as the electricity was concerned, offered no difficulty at all. Any intelligent student could learn it in half an hour. The selection of proper cases, however, the passage of the sound, &c., required a profound gynæcological knowledge, as Dr. Apostoli had well remarked; and beyond any question this method of treatment never could be widely and indiscriminately employed. If not carefully used, and in suitable cases only, much mischief would certainly follow.

Electrical Treatment of Fibroid Tumours of the Uterus.—Mr. Skene Keith said that although sufficient time had not elapsed since Dr. Apostoli began this treatment for them to pass judgment upon it, yet he could say, from an experience of nearly 3,000 applications, that the results—and some of these results had already stood the test of 8 or 9 months—had been such that Dr. Keith, whose mortality after hysterectomy appeared to be the smallest of any operator, had not found it necessary to advise either that operation or even the less serious one of removal of the ovaries since his visit to Dr. Apostoli last year. Since June Dr. Keith and himself had had under-

treatment 92 cases of distinct fibroid tumours of the uterus, in fact, every one where there were symptoms had been treated; and, without entering into details which would be published later on, he might say that, on the whole, the results had been extremely satisfactory. Of those 92 women, 76 had had more or less of the ordinary treatment without receiving any marked benefit. The great disadvantage of this treatment was the length of time it took, though often not longer than a visit to a watering-place, and the amount of work which fell on the physician or surgeon. On the other hand, one great advantage was that, when necessary, it could be carried out in the out-patient room of any hospital, and that the patient could attend to her ordinary duties exactly the same as usual. They had already heard of operation being required when this treament had failed. This might be so, but he would ask that a distinction should be made between Dr. Apostoli's and various methods of treatment which went by his name. For example, a friend had told him (the speaker) that he had not read Dr. Apostoli's papers; another thought that he had made a discovery when a patient told him that he (Mr. Skene Keith) had moved the sound over the surface of the uterine cavity. Need he say that their results had not been brilliant? The practice of Sir Spencer Wells of publishing every case of ovariotomy had been followed by Dr. Apostoli in the thesis of Dr. Carlet, published in 1884. They had had full details of about 100 cases, and it was by such means that the value of the electrical treatment of fibroids had to be decided. Dr. Keith regretted much that he could not be present, but he (the speaker) had his authority for saying that so long as they could get the results they had had by electricity, he had no intention of advising any patient to run the risk of dying after hysterectomy, or after removal of the ovaries for fibroid. (British Medical Journal, May 12, p. 1012.)

Enlarged Breasts.—*Treatment.*—After stating that the internal administration of preparations of iodine decidely reduces the women, Kisch (*Deutsch. Med. Zeitung*, 1888) recommends the following for enlarged breasts with excess of adipose tissue:—℞. Iodoform. pur. (fab. Tonk. deodor.), 1 part; vaselin. pur., 15 parts; ol. menth. pip., q.s. M. Ft. ung. S. To be rubbed into the breasts, which are then to be covered by linen moistened with warm acidulated clay: ℞. Alum. crud., 1 part; plumbi acetat., 5 parts; aquæ dest., 100 parts, M., and covered with rubber paper. The dressing remains twelve hours, is changed morning and evening, and is continued for several weeks. So that the breasts, after the removal of the fat, may not become too much relaxed or wrinkled, the author has them rubbed with one of the aromatic spirits, and has the breasts supported by appropriate elevating bands. (Medical News, Sept., p. 242.)

FLAP-SPLITTING IN PLASTIC OPERATIONS.—The following description of the method of "Flap-splitting," published by the late Mr. Maurice Collis, in the Dublin Journal of Medical Science for 1861, is given by Mr. Lawson Tait in that Journal for May, 1888:—"The operation consists, first, in splitting the margin "of the fistula all round, so as to separate the vesico-vaginal "septum into two equal portions, one-half consisting of the "vaginal mucous membrane and submucous tissue, and the "other of the vesical mucous membrane and submucous tissue, "the muscular portion of the septum being equally divided "between the two. The extent of this artificial separation is to "be regulated by the extent of the fissure, by the condition of the "margins, and, to a certain extent, by the position of the fissure. "Where the fissure is near the vesical end of the urethra, or near "the cervix uteri, the dissection need not be carried to any great "depth. . . . Anyone who has removed a ring of mucous "membrane from ever so small a fistula, will have observed how "large it becomes under the process, and sooner or later will "have probable cause to regret the loss of substance thus en-"tailed; whereas, in my operation, if carefully done, no loss "of material occurs; and even if it fail, it leaves the patient in "no worse condition for subsequent treatment than before. . . . "In this operation we have a double prospect of success. It will "be seen when the raw surfaces are drawn together by quilled "sutures, that a ridge rises up on the vaginal surface between "the quills. A similar and a larger ridge is thrown up towards the "bladder; this acts as a valve to prevent the water escaping or "even coming in contact with the wound; and even if the parts "included between the quills should slough, the flaps which "point towards the bladder are exempt from the pressure of "the quills and the strain of the sutures, so that they escape "from sloughing and actually unite before the other flaps, and "remain united, even if the latter give way. The operation is "simple and requires no very complex armamentarium, and only "the amount of dexterity which should be possessed by every "surgeon deserving of the name. However, if such knives "are not at hand, any pocket case will supply the want, for it "is not so much the implement as the hand that guides it that "secures success, and all surgeons ought to be able to do their "work with as few implements as possible. . . . My opera-"tion is suitable to almost every case, and to many cases which "could not be subjected to the older methods with the smallest "chance of success. In a large gap, where the loss of substance "is to be measured by square inches, no person could expect "union by simply paring the edges and drawing them together "by the interrupted suture. The strain on the threads would "be too great, and they would inevitably cut out. Nor is the

"success of autoplastic operations, by which flaps are trans-
"planted from neighbouring parts, such as to lead us to expect
"much from them. In these cases it is of great importance to
"have a mode of operating which can be frequently repeated
"without repeated diminution of the already scanty material.
"In small gaps, on the other hand, it will not redound to the
"credit of the operator if the rent is made worse each time he
"interferes. Such a misfortune cannot happen by my opera-
"tion in any case to which it is suited. There is no loss of
"substance; and the surgeon can begin again *de novo* in a few
"weeks with the parts in at least as favourable a condition as
"before." (Dublin Journal, May, p. 382.)

Hydrastis Canadensis in Uterine Diseases.—Hydrastis Canadensis, or the Golden Seal, is, of all the more recently introduced drugs, one which, with a larger experience, increases in favour daily. It was the knowledge which Professor Schatz, of Rostock, had of the efficacy of hydrastis Canadensis in inducing strong peristaltic contractions of the intestine that led him to employ it as a uterine tonic. So successful has Schatz been in the treatment of diseases of the uterus and its appendages which are attended by considerable losses of blood, that since employing this drug in the treatment of these cases there has not been in his district, it is said, the necessity to have recourse to surgical proceedings so frequently as formerly. Hydrastis is recommended for all forms of chronic metritis, for inflammations invading the tissues around and in the wall of the uterus, for ovaritis, and for uterine fibromata, the growth of the latter, it is maintained, being not only arrested, but in many cases they have been found to undergo retrogression. Hydrastis certainly does restrain the flow of blood in myofibromata, but it is in cases of menorrhagia where the loss of blood depends upon a para- or perimetritis that its efficacy, in my opinion, is most marked. It not only relieves ovarian pain, but it has checked uterine hemorrhage in cases where there has been such evidence of inflammation outside and immediately around the uterus that intra-uterine medication could not have been attempted. The drug has, in my hands, had little or no effect upon uterine hemorrhage dependent upon mucous polypi. I regard hydrastis Canadensis as a most useful and valuable addition to our already large list of uterine remedies. It soothes ovarian pain, acute or chronic, and checks the bleedings of the latter; it checks the bleeding of endometritis, and relieves that unpleasant pain which prevents the woman thus affected from either sitting or walking; it relieves, and in many cases has arrested, the hemorrhage due to puerperal metritis and chronic peritonitis; and in many instances it has relieved the headache so frequently complained of by women who are the subjects of chronic inflammatory affec-

tions in and around the uterus and ovaries. (Dr. Thomas Oliver, Lancet, May 5, p. 868.)

Laceration of Cervix Uteri.—*Treatment.*—Sänger (*Schmidt's Jahrbücher*) details the results of his observations, which are interesting as presenting a fair view of the subject from the standpoint of an enlightened German specialist. Among 1500 gynæcological patients he noted 13·4 per cent. with laceration of the cervix, one-third of the number being primiparæ. He states quite positively that no cervical tear heals by first intention. Ectropion is frequently observed, due, in the writer's opinion, to the presence of both subinvolution and cervical endometritis. The results of laceration are disease of the endometrium, chronic metritis, and parametritis; the latter was noted in 40 per cent. of his cases, and was usually unilateral and confined to the left side, sometimes giving rise to right latero-flexion. Sänger never observed oöphoritis as a consequence of a cervical lesion, as described by some writers. Sterility was only "relative." The chief symptoms noted were leucorrhœa, menorrhagia, and "pains in the parametrium;" hystero-neuroses were also present. Emmet's operation is the only proper treatment of this condition; if there is indurated tissue in the angle of the tear and in the adjacent parametrium, preparatory treatment with iodine, massage, and hot vaginal injections is advisable. He operated upon twenty-two patients; in nineteen the wound healed perfectly and in every instance the bad symptoms disappeared. (American Journal, June, p. 651.)

Menstrual Disorders Arising from Chronic Alcoholism.—Many writers have described menstrual disorder of all kinds as arising from chronic alcoholism apart from portal congestion; and Lancereaux particularly mentions premature cessation of menstruation, seemingly connecting this with the observation in several cases of smallness of size of the ovaries, and principally of the cortical or glandular parts of them. Such statements, though having a small value, are lamentably vague, and I have only similar statements to add to the discussion of the subject, but they are made from large experience and confirmed by clinical bimanual examination. The injurious effect on the ovaries is frequently observed in women who are plump or fat, and have no great disorder of general health; and, for the evil result, it is not necessary that the women be, in the ordinary sense, intemperate, but only using spirituous drinks largely, soakers in a moderate degree. While every variety of menstrual disorder may certainly occur, my experience indicates menorrhagia as by far the most frequent. The menorrhagia is a loss prolonged rather than excessive within the limits of an hour or a day. It may possibly be dependent on a degree of endometritis

corporis, but I know no means of proving this in the present state of gynæcology. Such endometritis may be part of, or an accompaniment of disease of the ovaries, which is quite easily detected. The ovaries are usually to be both felt, generally enlarged, tender, smooth surfaced, and having circumambient diffused swelling and imperfect fixation, sometimes to such a degree as to suggest the presence of adhesions. That all this is a true view of such cases is copiously attested by the complete recovery of healthy conditions in cases not already of too great duration, when alcoholic drinks are totally abstained from; and, not rarely, such recovery is further attested by supervention of pregnancy, this condition of the ovaries frequently preventing or arresting fertility, though it does not invariably do so even when well marked and distinctly affecting both glands. That this chronic ovaritis, as it may be justly termed, may terminate, as has been suggested, in cirrhotic atrophy, I have no reason to doubt, neither have I any ground for asserting it. (Dr. Matthews Duncan, Edinburgh Med. Journal, April, p. 876.)

Mercurialism in Lying-in Women.—*Suggestions for its Prevention.*—At the Obstetrical Society, on July 4, 1888, Dr. Boxall read a paper on this subject. The question was debated under two separate headings: (1) increased absorption; (2) defective elimination. Under the first head, the site of absorption was discussed; the question whether the solution obtained entrance to the cavity of the uterus when the uterine tube had not been employed was debated, and an experimental investigation undertaken with a view to determine the point was related. It was suggested that absorption not infrequently occurred inside the uterus, even when the uterine tube had not been employed, but that it might also take place through the lacerated surfaces of the cervix, vagina, and perineum, or even through the intact mucous membrane. Reference was made to the experimental research conducted by MM. Doléris and L. Butte which bore on this point. With a view to diminish the risk of absorption it was suggested: 1. That not only should care be exercised to obtain contraction of the uterus, but that it should be also carefully maintained, and, above all, that the douche should always be given at such a temperature as would stimulate the uterus to action. 2. That the douche should invariably be administered in the supine position, the uterus at the same time being supervised by one hand placed on the abdomen. 3. That, when the administration was completed, the precaution should invariably be taken of ascertaining that the uterus was contracted by palpating the abdomen, and, if distended, the fundus should be squeezed like a sponge in the palm of the hand, and at the same time should be depressed with the object of evacuating the vagina. 4. That the surface of lacerations about the external

orifice should be brought together, and any abrasions which remained should be coated with some material impervious to the solution. Under the second head, the relative eliminative power of the different excretory organs was discussed, and especial attention was directed to the condition of the kidneys and intestine. The following suggestions were offered: 1. That chronic nephritis, and probably also those changes which occurred in the kidneys during pregnancy, might, by diminished elimination, produce an accumulation in the septum. 2. That the intestine possessed an equal if not a greater eliminating power than the kidneys. With a view to obviate the risks arising from defective elimination—1. That, when the kidneys were affected, the sublimate douche should not be employed, or, if used, extreme caution should be exercised. 2. That a free watery flow should be promoted by the kidneys, and that especial care should be directed to this point in hot weather. 3. That the bowels should be evacuated daily, either by salines or by the administration of such agents as produced copious and loose stools. A tabulated series of eleven cases which presented symptoms of slight mercurialism was appended. A fatal case of mercurialism was also narrated. (British Medical Journal, July 14, p. 78.)

Painful Menstruation.—Dr. B. W. Richardson (*Asclepiad*, No. 18) recommends the following formula:—℞. Croton chloral, gr. ij; oil of juniper, ♏iij; glycerin, ʒj; distilled water, ʒiss. To make a draught; to be repeated every five or six hours until relief is obtained. (Medical News, June 30, p. 714.)

Placenta Prævia.—*Treatment.*—Obermann, in the *Archiv für Gyn.*, publishes his results in the treatment of placenta prævia by Hofmeier's, or the Berlin method. Obermann's material for observation was sixty-four cases occurring in the Leipzig clinic during four years; of these the maternal mortality was 11 per cent., among the children 53 per cent. After a full consideration of his cases, he describes the method of treatment employed, briefly, as follows: 1. Hemorrhage in patients with placenta prævia calls for early operation; the best operation is version by combined external and internal manipulation, with deliberate extraction. 2. The operator should bring the breech to the os uteri and maintain it as a tampon; massage of the body of the uterus during deliberate extraction is an important adjunct to the operation. 3. Hemorrhage from a lacerated cervix should be checked by immediate suture; tamponing with iodoform gauze is only advisable when hemorrhage occurs during early pregnancy; when the os is undilated the colpeurynter should be used. 4. Alcohol (brandy or sherry) should be early and freely given. (American Journal, June, p. 640.)

PUERPERAL FEVER.—*Etiology of.*—Eisenberg, in *Centralb. für Bakt.*, reviews the bacteriological literature of the subject, and sums up the present state of our knowledge as follows: Puerperal fever is not a specific disease, but is that process recognised in surgical practice as phlegmon, pyæmia, or septicæmia, and caused by both streptococcus and staphylococcus, and in some cases appearing as a diphtheritic process. It follows naturally that all the means which the study of bacteria has shown to be efficient should be employed to destroy sources of infection. (American Journal, June, p. 641.)

PUERPERAL URÆMIC AMAUROSIS.—A case of uræmic amaurosis in the puerperal period is noted by Dr. P. Marcuse. The patient remarked five weeks before delivery that her urine was dark and scanty and that her feet were swollen. Immediately before her confinement the secretion of urine almost entirely ceased, but there was no headache, vomiting, or loss of consciousness. As soon as the pains began, however, violent headache came on. The labour was normal; after it was over, vomiting was added to the headache, and a quarter of an hour later the patient was completely blind in both eyes. The next day the eyelids were closed. When opened with the fingers, the eyes appeared dull and wandering; the pupils were of equal size; there was complete amaurosis; both feet and legs were greatly swollen; but there was no swelling of the face, and very little ascites. During twenty-four hours the urine passed was about nine ounces; it was of a dark reddish-brown colour, and contained 1 per cent. of albumen. Ice bladders, morphia, and diuretics were ordered. The patient very soon improved. In four days she could see to read, and in a fortnight she was convalescent. (Lancet, June 16, p. 1204.)

REMOVAL OF THE UTERINE APPENDAGES.—The following conclusions as to when the uterine appendages should be removed are appended to an address on "The Principles of Practice involved in the Extirpation of the Uterine Appendages when not the Seat of Tumour," by Charles A. S. Reed, M.D., of Cincinnati. (1) In cases in which, after adequate investigation, he is assured that there is intra-tubal accumulation. (2) In cases in which, from congenital deficiency of some of the organs, there can be no healthy exercise of the menstrual function. (3) In cases of chronic ovaritis, giving rise to intolerable pain, and in which cure has been demonstrated as impracticable by conservative means. (4) In cases of irreducible displacement of the ovaries giving rise to severe pain. (5) In cases of large uterine myoma giving rise to dangerous hemorrhage, and in which the electrical treatment has failed after a reasonable trial, and finally, in which extirpation of the appendages can be prac-

tised with greater safety than hysterectomy. (6) In cases of puerperal peritonitis and intraperitoneal accumulations in which, after opening the abdomen, the appendages are found diseased. (7) In cases of intraperitoneal hæmatocele in which, on exploration, a bleeding point is found in a ruptured tube. (8) Exploratory incision should be advised in all cases in which any of the foregoing conditions are reasonably suspected, and in all cases "of disease of the abdomen or pelvis in which the health is destroyed or life threatened, or in which the condition is not evidently due to" irremovable "malignant disease." (Journal American Med. Association, Aug. 25, p. 258.)

Ruptured Perineum.—*The Flap Operation for.*—Sänger (*Sammlung Klin. Vorträge*) reports 18 successful cases in which he operated according to Tait's method, and commends it highly. He gives the following brief directions: 1. In incomplete rupture insert a cotton tampon into the rectum, split the recto-vaginal septum transversely with a pair of sharp-pointed scissors, curved on the flat, over a surface five-eighths of an inch long, and one and a half inches wide. From each end of this cut surface make two vertical incisions (having the shape of ⌊⌋), draw the flaps upward and unite the edges of the quadrangular raw surface by deep silver sutures carried on a curved needle, with intermediate sutures of silkworm gut, the latter being removed on the seventh, the former on the fourteenth, day. 2. In cases of kolpocele, with or without laceration of the perineum, the same operation is performed (preceded by amputation of the portio vaginalis, or kolporrhaphy, if necessary), but the vertical incisions are carried further forward, so as to form a very narrow introitus and high, thick perineum. 3. In old lacerations through the sphincter he splits the recto-vaginal septum transversely with a scalpel, forming a vaginal and a rectal flap, then the lateral incisions are made as before, and are carried backward as far as the ends of the sphincter muscle (forming a figure H); the vaginal flap is drawn forward, the rectal backward, the raw surfaces being united as before, the sutures being introduced from the perineal side only, as this avoids the formation of a recto-vaginal fistula. The bowels are moved on the third day. (American Journal, May, p. 543.) [See also "Flap-Splitting in Plastic Operations, p. 112]

Supra-Vaginal Amputation of the Uterus. — Krassowsky (*Centralb. Gyn.*, 1888) reports nineteen cases, with a mortality of forty-four per cent. In twelve cases the stump was treated extra-peritoneally, with a resulting mortality of fifty per cent., while by the intra-peritoneal method it was only thirty per cent. In seventeen cases the operation was complicated by the presence of numerous adhesions. It was in each instance performed under carbolic spray; for cleansing the hands, instruments, and

ligatures a solution was employed consisting of one per cent. of biniodide of mercury and three-fourths of one per cent. of iodide of potassium. The closed wound was painted with a mixture containing four parts of biniodide of mercury and eight parts of collodion in alcohol (ninety-five per cent.) The writer queries whether it is not always better when, in the course of an oöphorectomy, a fibroid uterus is discovered to be content with removal of the ovaries, whether both are diseased or not. He is undecided as to the advisability of completing an ovariotomy by removal of the uterus with the cyst, when the two are firmly adherent. (American Journal, June, p. 652.)

Vaginismus. — *Treatment.* — Amongst the topical palliative remedies that may, conjointly with constitutional nerve sedatives be employed in these cases are warm baths and vaginal irrigations, local application of solution of hydrochlorate of cocaine or of glycerine of carbolic acid, or the introduction of suppositories of cocaine and belladonna. When such palliative measures have been fairly tried without advantage, we may then resort to mechanical dilatation of the vaginal orifice and stretching of the pudic nerve. For this purpose, having first fully etherised the patient, a large-sized Graily-Hewitt bivalve speculum should be introduced and expanded to its fullest extent. Then a tampon of absorbent lotion large enough to fill the speculum should be soaked in glycerine and passed up to the cervix, its lower end projecting through the external opening of the instrument. This, still fully expanded, should then be forcibly drawn out, leaving the central tampon behind in the vagina. It need hardly be observed that this procedure occasions severe pain. At the same time, however, it as certainly tears through some of the superficial submucous muscular fibres of the affected part, as well as effectually stretches the terminal vaginal branches of the pudic nerve, and thus affords a generally efficient and safe method of overcoming the spasmodic contraction with which we have to deal in cases of vaginismus. Any subsequent contraction or hemorrhage that may follow this procedure is sufficiently met by the tampon, which may be retained for at least twenty-four hours; and after some days, should there be still a continuance of vaginismus, the same may be again repeated. (Dr. More Madden, Dublin Journal, April, p. 305.)

Vesico-Vaginal Fistula.—Herff (*Frauenarzt*, 1888), recommends the closure of the fistula by splitting the vesico-vaginal septum around the opening, doubling in the undenuded edges of the vesical and vaginal muscosa respectively, and uniting each by deep and superficial sutures. The advantages claimed for this method are:—1. It will be necessary to remove only such tissue as is actually cicatricial. 2. Large raw surfaces are

brought in apposition, thus insuring reunion. 3. The opposite edges of mucous membrane fall together naturally. 4. When there is so much cicatricial tissue in the vagina that it is impossible entirely to excise it, by splitting the septum and uniting the under surface of one edge of the fistula to that of the other, the operator avoids the necessity of opposing two cicatricial edges. 5. As the resulting cicatrix is parallel to the urethra, there is not danger of contraction of the latter canal. 6. Since there is no loss of tissue, it is always possible in case of failure to operate subsequently by the usual method. (American Journal, July, p. 104.)

Disinfection of Surgical Instruments and Dressings.—Renard (*Revue de Chirurgie*) shows that disinfection of sponges and instruments by a five per cent. carbolic acid solution is unreliable, many of the pathogenic organisms withstanding a soaking of from thirty to forty-five minutes. Bichloride, he concedes, is more powerful, but objectionable in many cases from its chemical action; for sponges it is to be preferred to carbolic solutions. Flaming, if thorough, is efficacious, but again restricted in its range of application. Boiling at 212° F. will destroy spores only if long continued. Steam at 230° F. destroys all microörganisms submitted to its action in thirty minutes. Renard has devised for the sterilisation of his instruments and dressings an apparatus similar to that used by bacteriologists. He uses a cylindrical copper boiler about an eighth full of water; baskets containing the instruments, and provided with feet to raise them from the surface of the water are put into the cylinder, a lid containing a manometer and a safety valve is screwed in place, and by means of an alcohol lamp the water is raised to the boiling temperature. The air in the cylinder passes off by a stop-cock in the lid, which is then closed and the pressure is increased till it represents a temperature of 230° F. One-half an hour's exposure is sufficient for absolute disinfection. Sponges should not, of course, be subjected to this treatment, nor for instruments should the temperature be allowed to exceed 245° F. Renard concludes his somewhat elaborate article with the following propositions: 1. Disinfection by means of steam compressed at 230° F., as applied in the apparatus described, is certain and practical. 2. Instruments or dressings submitted to this treatment for fifteen to twenty minutes are absolutely disinfected. 3. The apparatus is very simple, not dangerous, and can be trusted to a nurse. 4. Neither instruments nor dressings are in any way altered by a prolonged treatment if the temperature does not exceed 230° F. (American Journal, Aug., p. 188.)

[See also p. 422 of this vol. on "How to Clean Sponges."]

Medicine.

GENERAL MEDICINE AND THERAPEUTICS.

Art. 1.—ON PERNICIOUS ANÆMIA, WITH JAUNDICE, AND ON CASES SIMULATING IT.

By John Syer Bristowe, M.D., F.R.S., Senior Physician to St. Thomas's Hospital, London.

[Dr. Bristowe records, in an exceedingly interesting paper, four cases, each of which, while presenting the ordinary features of idiopathic anæmia (including under this term cases of chlorosis which recover, and cases of pernicious anæmia which usually end in death), was characterised by obvious but not deep jaundice (without clay-coloured stools and stained urine) and great enlargement of the spleen, and in one case enlargement of the liver. Commenting upon the four cases, Dr. Bristowe says:]

That the last two cases were of the same nature there can scarcely be a doubt; and that they presented many characters in common with the first two is also obvious. The identity between the last two is implied by the association in both of chronic enlargement of the spleen, chronic yellowness of conjunctivæ and skin, simulating hepatic jaundice, and deterioration in the quality of the blood. It is true that in one of the patients there was a loud cardiac murmur, venous *bruits*, and marked bloodlessness, with such changes in the blood as are found in advanced pernicious anæmia; and that in the other the heart's sounds were healthy, no venous hums were observed, the anæmia was scarcely noticeable, and the microscopic changes in the blood were only slight. But I confess I have a suspicion that the cardiac murmur was hæmic, and at any rate, all the other differences just enumerated are only such as might be explained by the different stages of anæmia the cases had severally attained.

The resemblances between the last two cases and the quoted cases of pernicious anæmia were mainly the presence, in both series, of jaundice without discoverable disease of the liver, alteration in the quality of the blood with loss, or tendency to loss, of red corpuscles, and the kind of weakness which attends progressive anæmia. Indeed, it might, I think, be argued that they were all four cases of pernicious anæmia, or, at any rate, of the same form of disease; inasmuch as, in addition to the resemblances above enumerated, enlargement of the spleen was.

present in all. It will be recollected that in my first case, although enlargement of the spleen was not observed clinically, the organ weighed a pound at the necropsy; and that, in the second case, some enlargement both of the liver and of the spleen was detected during life. But, on the other hand, the long duration of the last two cases, and the fact that the patients were both girls, of an age at which ordinary chlorosis is common, pernicious anæmia rare if not unheard of, render this view of their nature improbable. I believe, although I do not pretend to adduce adequate proof of the correctness of my belief, that the first two and last two cases really belonged to different categories.

It may be asked, To what was the large spleen in these cases due? In the last two cases there was no reason to believe it was of malarial, of syphilitic, or of rickety origin; there was nothing that could have induced lardaceous degeneration; there were no tumours of lymphatic glands or disease of other organs to suggest the presence of lymphadenoma; neither the symptoms nor the condition of the blood was compatible with leucocythemia; and, lastly, there were no sufficient grounds to attribute the splenic enlargement to portal obstruction. In the first case the structure of the enlarged spleen seemed to be healthy; in the second case it is of course possible that the enlargement of the organ was consequent on portal congestion.

The fact, however, that the spleen was enlarged in all four cases suggests the inquiry whether there was any relation between the presence of jaundice and this enlargement. It is admitted, I believe, by physiologists that one function of the spleen is to cause the disintegration of effete red corpuscles, and that the serum of the blood in the splenic vein is tinged with the dissolved hæmoglobin derived from this source. It seems not unlikely, therefore, that (whatever may be said as to the first two cases) in the last two cases the enlargement of the spleen was connected with an undue destruction of red corpuscles in this organ, and the discharge into the blood-stream of a larger amount of dissolved hæmoglobin than could be got rid of by normal physiological processes, and hence the general staining of the blood-serum and the general yellow tint of the body. But, at any rate, the jaundice in no case presented the characters of jaundice from obstruction of the hepatic ducts, and there is no sufficient ground for attributing it in any one of the cases to disease or disorder of the liver.

[Speaking of the general characters of pernicious anæmia, the author says:]

Pernicious anæmia is an affection in which, without any organic lesion that has hitherto been discovered sufficient to account for it, without any recognised malarious or similar influence, without any apparent climatic or dietetic default, the blood undergoes

progressive deterioration, especially in regard to the number and quality of its corpuscles, and in which the symptoms the patient presents are mainly such as depend on gradual increasing blood-lessness.

This definition, so far as I have gone with it, necessarily includes chlorosis or the anæmia of young women, which usually goes along with some derangement of the menstrual function, and which, almost without exception, if not always, is curable by the judicious administration of iron; and I must confess that it seems to me impossible at the present time to make any trustworthy distinction between the chlorosis of girls and pernicious anæmia, save such as depends on the age and sex of the patients and on the effects of treatment. Chlorosis occurs among young women, and is curable by iron; pernicious anæmia occurs among men and women, usually above the age of 30, and iron is generally without beneficial influence. Nevertheless, I believe, as most physicians believe, that there is a fundamental difference between them; and, moreover, I suspect that the affections now grouped together and labelled "pernicious anæmia" will hereafter be found to belong to several categories.

Pernicious anæmia, for the most part, comes on gradually. The patient progressively loses the warm tint of health, until at length not only his cheeks, but his lips and tongue, the inner surface of his eyelids, his ears, and his finger nails become almost white. Shortness of breath and liability to palpitation come on, phenomena which at first are slight and observed only when he is ascending stairs or undergoing exertion, but afterwards become more or less continuous, or at any rate induced by very slight causes. The action of the heart gets feeble, variable in rate, and sometimes irregular. A hæmic murmur usually develops over the pulmonic area. Venous *bruits* become recognisable in the veins of the neck. The patient complains of noises in the ears, more especially at night-time and when lying down. Dropsical effusions take place into the connective tissue, and mainly in the lower extremities. There is a marked tendency to hemorrhage from the nose, the mouth, the stomach, the bowels, on the surface and into the substance of internal organs, and beneath the skin. And especially hemorrhage takes place into or about the retinæ. The digestive functions commonly suffer; the appetite usually fails; dyspeptic symptoms, with sickness after food, are of frequent occurrence; and as a general rule, the bowels are constipated. The urine is for the most part unaffected, but sometimes it presents traces of albumen. The patient gets more and more feeble, unable to bear exertion or exposure to cold; but usually there is no great degree of emaciation. He becomes apathetic and forgetful, yet often irritable and fidgety; and if death ensues (as probably it does sooner or later) he sinks from exhaustion, not

infrequently preceded by coma, or from some intercurrent complication.

The colour of the skin is usually such as might be caused only by extreme bloodlessness, but not infrequently there is a distinct yellow tinge (affecting also the conjunctivæ), which may be so intense as to be mistaken for that of ordinary hepatic jaundice. But it is unassociated with any disease of the liver; no biliary pigment (at any rate as a rule) finds its way into the urine; and it is due, no doubt, not to the absorption of bile, but to the destructive changes going on in the blood corpuscles and the escape of their colouring matter into the blood serum. The blood becomes thin and watery; and under the microscope there is found considerable and for the most part proportionate diminution of both white and red corpuscles. The blood in several of my own cases was very carefully examined by my pupil, Dr. Copeman, whose observations are published in the last volume of the St. Thomas's Hospital Reports, and partly confirm those of previous writers, but present a few additional items of information. He shows that the red corpuscles may be diminished to 30 or 40 per cent. of their proper number—other observers have found them still more largely diminished; that they are mostly smaller, paler, and less consistent than usual, and tend to alter in shape, and especially to become elongated, and to break down; that they do not usually run into *rouleaux;* that mixed up with them are other corpuscles of very small size, and usually of deeper tint than even healthy corpuscles; that the blood serum has, in some cases, an amber-yellow hue, and that in some, crystals of hæmoglobin (which in healthy blood are hard to obtain) appear spontaneously when the blood is undergoing desiccation. The breathlessness is no doubt mainly cardiac, depending on feebleness of circulation, the effects of which are necessarily exaggerated under the influence of exertion or excitement; but dyspnœa may be partly due also to œdema of the lungs occurring as a part of general anasarca. This general dropsy, though not always present, is a common incident of the disease, and may become very considerable. Both dropsies and hemorrhage seem to depend partly on poverty of the blood, partly on weakness of circulation, and on thrombosis, which both of these conditions tend to produce. Noises in the ears which are sometimes rushing, sometimes steam-engine like, sometimes musical, almost always come on sooner or later. They are more or less continuous, and evidently venous. They are sometimes the chief source of complaint on the part of the patient, and frequently prevent him from sleeping. They are related, causatively, to the co-existent venous murmurs in the neck and the hæmic murmurs at the base of the heart, and are, I am inclined to think, the product of a flaccid condition of the vascular walls and relative emptiness of vessels.

I have already pointed out that the urine is sometimes of normal quality and of normal colour to the last, a point of some interest, inasmuch as it implies a continuous and relatively increasing drain on the red corpuscles. In addition to the restlessness and irritability not infrequently observed, and the coma which occasionally supervenes towards the close, patients sometimes have delusions and become maniacal, occasionally suffer from temporary blindness, and occasionally also lose voluntary power and feeling, more especially in the lower extremities. The temperature for the most part is either normal or subnormal, but not infrequently patients present febrile rises which may be either occasional or more or less persistent, but are rarely high.

Finally, although in a large proportion of cases the disease is progressive, and proves fatal in the course of a year or two, undoubtedly there are many cases in which more or less perfect recovery takes place, a recovery attended, however, with liability to relapse.—*British Medical Journal, June* 2, 1888, *p.* 1149.

2.—ON THE CLINICAL VALUE OF TEMPERATURE OBSERVATIONS IN TYPHOID FEVER.

By J. O. Affleck, M.D., Physician to the Royal Infirmary, Edinburgh.

The relation of temperature and pulse in typhoid is very interesting, and in not a few instances renders valuable aid in diagnosis. In cases of moderate severity, or mild cases, where presumably there is little bowel lesion, or where this has not passed on to extensive ulceration, it will frequently, if not, indeed, usually be found that the pulse-rate is low compared with the height of the temperature. Thus I have often seen a temperature of 104° with a pulse not exceeding 80; and a case ran through all its stages where the pulse-rate never attained 100. Such cases are mostly favourable, with comparatively quick recoveries. This slow pulse is often singularly useful in diagnosis in the early stage of typhoid, where the high temperature and other symptoms might suggest some other disease. Where the pulse is rapid all through, or, having been slow at first, becomes accelerated later on with persisting high temperature, the case, making allowance for nervous or constitutional irritability, is probably one of considerable severity. It is also to be noted that sometimes the pulse increases in rate after defervescence from heart irritability and weakness, a condition in which digitalis often proves of eminent service. This temperature and pulse relationship is noteworthy and important from the second week onwards, inasmuch as most of the complications so common in this fever are capable of ready recognition by a careful plan of temperature observation. Changes of sudden and alarming character may be brought about by a hyperpyretic

movement of the temperature, of which the early discovery will give opportunity for interfering actively, and sometimes successfully. But even more frequently still may arise during this time one or other of those accidents to which the typhoid patient is exposed, and of which the temperature affords one means, although, of course, not the only one, of quick detection.

Thus a hemorrhage may often make itself known by the rapid fall of the temperature, together with pallor of the face, sighing respiration, and small, quick pulse, even before the blood has appeared in the stools, and suggest the prompt administration of styptic remedies. No doubt a similar set of symptoms may result from perforation, and in many instances it is scarcely possible to distinguish between the two occurrences; yet in the latter the abdominal pain, vomiting, and supervention of peritonitis are specially marked. A condition occasionally arises resembling those just described, but owning a different cause from either, and yet equally dangerous, viz., where in a case pursuing its normal course the temperature suddenly drops from a high degree, and signs of sinking show themselves, without any evidence of local cause or even much disturbance in the patient's subjective sensations. This is simply collapse from heart failure, and it is early recognised by the descent of the temperature. Its detection in this way is all-important with the view of averting by prompt stimulation the otherwise frequently fatal result. Other complications, more or less common, owe their discovery to carefully observed temperature changes.

It is important to know that in any case of collapse, or other change where life is not quickly extinguished, the temperature generally rebounds upwards again, often to a higher point than that at which it stood before, and that from this time onwards the temperature range becomes more irregular and aside from the typical characters of the fever.

The thermometer indicates the departure of the fever, which is generally held to be at an end when the evening temperature over several days continues normal. But evening observations must be made from time to time during convalescence, especially after any change of diet, and in connection with movement from bed, &c., for it is by the continuance of this practice mainly that the relapses so common and so important in this fever are detected. Into the causes of these relapses it is not possible at present to enter, but they may arise at a time when all risk of such things seemed at an end; and while no doubt they are usually of short duration and have a favourable issue, they may, on the other hand, extend over as long a period as the original attack, and they occasionally terminate fatally.

Certain anomalies of the temperature in typhoid are worthy of notice; for although wholly exceptional, they show that important

as is the thermometer in the diagnosis of this disease, it would never do to trust to it alone. Thus there have been instances of typhoid, even in epidemic outbreaks, such as that described by Struve (Berlin. Klin. Wochenschrift, 1871, No. 30), as occurring in the German army at the siege of Paris in 1870, where the temperature throughout was at normal or subnormal point. In such instances it has been justly held that peculiar environments or conditions of life must have modified some at least of the features of the disease. That such is possible is, I think, illustrated in one of my cases, which occurred in the person of a night nurse in the Royal Infirmary, who was attacked with typhoid and treated in the Fever Hospital. It will be noticed that for many days the temperature showed a contrary course to that ordinarily manifested, inasmuch as there was a regular morning rise and an evening fall, but that ultimately the case assumed the normal character as regards temperature. This is not the only instance of this kind of inverse temperature in typhoid which I have observed, although, on the other hand, I have had night nurses under my care in whom the temperature pursued the ordinary course.

The co-existence or recent occurrence of any serious disease may also markedly modify the character of the temperature symptom of typhoid. In children the type of the fever is markedly remittent, with frequently very high evening temperatures; while in persons over middle life the height of the temperature is often not great, and so less to be trusted as the measure of the severity of a case.

The length of time a case of typhoid may sometimes continue is surprising. I possess charts showing a continuous febrile temperature for over 100 days before defervescence occurred, and where yet complete recovery resulted. No doubt long-continuing unhealed ulcers of the bowels explain such cases; but were it not for a careful observation of the temperature among other symptoms, one might very easily be led to suspect that an error in dignosis had been made at the first, and that the case was really one of phthisis.

It scarcely falls within the intention of this paper to refer to the effects of treatment upon the temperature of typhoid. One remark only can I make, namely, that while I have not had sufficient experience of the cold bath treatment of the fever to state any facts of importance, I have used extensively antipyretic drugs, and have found that, while they doubtless possess much value in some cases by breaking in upon the continuity of a long-lasting and very high temperature, they appear to have no effect in shortening the duration of the disease, but according to my experience, seem rather to tend to prolong its course. Moreover, great care is necessary in their administration, particularly in large doses (say 20 to 30 grains of quinine), which I have more than once seen induce a fall of temperature and of pulse so great and so rapid as to

amount to dangerous collapse, necessitating the prompt resort to stimulants.—*Edinburgh Med. Journal, July* 1888, *p.* 10.

3.—ON A CERTAIN REACTION OF THE URINE IN TYPHOID FEVER.

By A. Brayton Ball, M.D., Physician to the New York and St. Luke's Hospitals.

The reaction, first described by Ehrlich in 1882, consists in the production of certain colours in the urine (diazor-benzol reaction) by the addition of sulphanilic acid in the presence of nitrous acid, and the alkalinization of the mixture by strong aqua ammoniæ. As the test spoils rapidly, it is better to keep two separate solutions which are to be combined when needed, or to make a fresh preparation when examinations are made only at long intervals. No failure to obtain the reaction can be relied on unless we are certain that the test solution is unspoiled. The two solutions are prepared as follows:—

℞. Acidi hydrochlorici (pure), 1 part; aquæ, 20 parts; sulphanilic acid, to saturation. M. Signa—Solution A.

℞. Sodii nitritis, 1 part; aquæ, 200 parts. M. Signa—Solution B. This solution spoils more readily, and should be renewed more frequently than Solution A.

The test solution is made by adding one part of Solution B to twenty-five parts of Solution A. Equal parts of the urine and of the test solution are mixed in a test-tube, and then stronger aqua ammoniæ is added freely to alkalinize the mixture. In normal urine the addition of the ammonia merely deepens the colour, or develops a light reddish tinge, and the deposit of phosphates, after twelve to twenty-four hours, retains its grayish colour. In urine presenting the characteristic reaction, addition of ammonia produces an intense scarlet, carmine, reddish orange, or even purplish colour, and the phosphatic deposit is coloured billiard green, violet, or greenish black, especially in its upper portion, as the layers last deposited carry down with them more of the pigment.

During the past five months Dr. Vaughan, of the house staff of St. Luke's Hospital, at my request, has used this test in all urinary examinations, no results being recorded as positive which did not present the above-mentioned characteristics. Over seven hundred examinations were made in three hundred and seventy-five different patients. A characteristic reaction was found in all the cases of typhoid fever, fifteen in number; and the intensity of the reaction usually corresponded with the severity of the disease in its several stages. The reactions were always more marked, as Ehrlich has noted, in the relapses than in the primary attack. Well marked reactions were found, also, in almost all advanced cases of phthisis, even in the absence of fever; in three out of nine cases of lobar

pneumonia, these three being fatal cases and in an adynamic condition at the time of examination; in two cases of empyema; in two cases of diffused carcinoma of the abdominal viscera; in one out of two cases of scarlet fever, and in one case of ulcerative proctitis.

These results correspond, in a limited way, with those obtained by Ehrlich in his far larger number of examinations—over seven thousand. He found the reaction occasionally in a febrile condition, such as advanced heart-defects, chronic hepatitis, carcinoma, especially of the pylorus, in the later stages of leucæmia, in senile marasmus, in severe malarial cachexia, cold abscesses, phosphorus-poisoning, and acute gastric catarrh. The febrile conditions presenting the reaction he classifies under three groups: 1, rheumatism, meningitis, and erysipelas, in which it is usually absent; 2, pneumonia, scarlet fever, and diphtheria, in which it is encountered more frequently; and 3, typhoid fever and measles, which give the reaction almost invariably. In abortive and very mild cases of typhoid fever he has observed its occasional absence. Two instances of this kind have fallen under my observation. In the first case—one of mild typhoid fever without diarrhœa or meteorism, but with typical successive crops of lenticular spots, and aborting on the sixteenth day—no reactions were obtained throughout the attack. In the second case, which was seen first on the twelfth day, no reaction was found on that day, but on the day following a slight but characteristic reaction was obtained. After this time the reaction was invariably absent. This case also was a mild one without diarrhœa, but presented a typical roseola.

In typhoid fever this reaction is found usually as early as from the third to the sixth day, and until just before defervescence takes place. During the course of the attack the reaction sometimes disappears on the development of some severe complication, such as pneumonia, or in great prostration from any cause; but with these exceptions the absence of the reaction, or its feebler manifestation, after pronounced reactions have been obtained, usually indicate the approach of defervescence.

As a diagnostic test for typhoid fever this urinary reaction has little value except from a negative standpoint; but, even with this estimation of it, I regard it as a valuable addition to our means of differential diagnosis. During the first week of typhoid fever—the trying period for diagnosis—it is of little assistance, but after this time the absence of the reaction renders the existence of typhoid fever very doubtful. At St. Luke's Hospital during the past winter, in several obscure cases admitted with a diagnosis of typhoid fever and presenting many of its symptoms, a failure to obtain the reaction has enabled us to exclude this affection, the subsequent course of the attack revealing some other disease. This negative

value, it seems to me, is far more important than any positive indication from the presence of the reaction, since the latter is found in so many other febrile affections.

Whether Ehrlich's test has any value in the differential diagnosis of typhoid and malarial fevers I am not prepared to say. The reaction has been absent in all the cases of intermittent fever in which I have tried it, and also in the only cases of malarial remittent—two in number, and both from the South—which I have seen during the past year. Ehrlich mentions the occasional presence of the reaction in severe malarial cachexia, but makes no reference to the application of the test in malarial remittent fever. So far as I am aware this point has not been investigated by European observers, and it is to be hoped that this deficiency will be supplied by observations in our Southern States, where ample material is always at hand.

In the application of this test the following points are specially important: 1, The test solution should be fresh; 2, a greenish or violet colour of the phosphatic deposit, especially of its upper layers, is more significant than the colour of the urine produced by the addition of ammonia; and 3, as regards typhoid fever, the absence of the reaction has greater diagnostic value than its presence.—*N. Y. Med. Record, Sept.* 1, 1888, *p.* 232.

4.—ON THE TREATMENT OF TYPHOID FEVER.

By James H. Hutchinson, M.D., Physician to the Pennsylvania Hospital.

The treatment of typhoid fever should not be a perturbating one, with the object of breaking up the disease. There are certain physicians who hold that the disease can be cut short, but I am not one of those. I have seen every variety of treatment introduced with this object tried without effect. I think that the best treatment is that which attempts to carry the patient through the attack without the production of any great constitutional disturbance, and which relieves symptoms when they become alarming, but which does not aim to cut the attack short. This is the treatment followed in this hospital. In the early stages we give a small quantity of acid with small doses of quinine. If the tongue becomes dry and brown, good results will often follow the administration of oil of turpentine. Ten drops of oil of turpentine with five drops of dilute hydrochloric acid may be given every two hours in mucilage. This agent was introduced into the treatment of this disease by Dr. George B. Wood, who believed that turpentine acted locally upon the ulcers and promoted healing. It is more likely that it acts as a stimulant, and possibly is carried to the ulcers by the blood.

The diet is a matter of great importance in this disease. A

large number of cases of typhoid fever require no other treatment than the restriction of the diet to liquid articles of food. There are ulcers in the intestine, and therefore the diet should be easily digested, and digested before it reaches the intestine. In the majority of cases milk constitutes the best form of diet. It sometimes gives rise to trouble from the fact that the coagula are not digested. This may generally be avoided by giving the milk with lime water. This breaks the curd up into small masses. Beef tea is also of service in these cases, although it does not contain as much nourishment as it was supposed to do at one time. The milk may be varied with beef tea, mutton broth, &c.

After convalescence is reached, some physicians at once give solid food, but if this is done, there may be a recurrence of the fever. After three or four days passed without fever, milk toast, a soft-boiled egg, or the soft part of oysters may be allowed. If the improvement continues, there should be a gradual return to solid articles of food. But I cannot too strongly impress upon you the importance of great care in the management of convalescence. I will not go so far as to say that errors of diet are the cause of relapse in all cases, for this would not be true, as relapses sometimes occur where every precaution has been taken. An error in diet, however, causes a recrudescence of the fever.

After my patient had been apyretic for several days, there was a slight return of fever. This occurred in consequence of constipation, and it was necessary to administer several enemata before relief was afforded. Constipation is sometimes a troublesome symptom in the convalescence of typhoid fever. In such cases it is proper to allow some laxative article of food. If this fails, recourse may be had to enemata. Where these do not succeed, simple olive oil may be given. It must be remembered that there is irritability of the bowels, and a couple of teaspoonfuls of oil will often be sufficient. In this case, as the tendency to constipation continued, I ordered—℞. Pulv. rhei, gr. j; ex. belladonnæ, gr. $\frac{1}{12}$; ex. nucis vomicæ, gr. $\frac{1}{4}$, to be given in pill form every three hours.

There is another point to which I desire to refer. Patients should not be allowed to sit up, or even to make much exertion in bed, during the early days of convalescence; and when they are first allowed to sit up, it should only be for half an hour at first; but it is important, also, to remember that there sometimes comes a time in the convalescence of typhoid fever when it is necessary to insist upon the patient sitting up, for, if he is allowed to remain in bed very long after convalescence has begun he will, after a time, cease to improve. And it is just as necessary that he should, as his strength returns, exercise his muscles, as that he should return gradually to a more varied diet than that allowed during the fever.—*The Polyclinic, Aug.* 1888, *p.* 37.

5.—ON THE VALUE OF SALOL IN THE TREATMENT OF ACUTE RHEUMATISM.

By J. Rose Bradford, B.Sc., M.R.C.S., late House Physician, University College Hospital, London.

During my tenure of the post of house physician to Dr. Ringer, I had an opportunity of testing the value of salol in some sixteen cases of rheumatic fever admitted under his care. Inasmuch as the drug is still on its trial, it was thought worth while to publish a short account of the results obtained.

Salol, as is well known, is a compound of salicylic acid and phenyl, and, according to the analyses of Tate, the ordinary commercial salol contains about 36 per cent. of phenyl. Hence the question arises as to whether its action as an antirheumatic is simply due to the salicylic acid it contains, or whether salol possesses other properties which make it superior to salicylate of soda. At the present time different observers are not agreed, since according to several it is stated to be superior to salicylate of soda. Others, however, consider that the only advantages of the use of salol are that its taste is not so unpleasant, and that its use is not so liable to be followed by toxic effects as so frequently occurs with salicylate of soda. Before discussing the results obtained, it will be convenient to give a short summary of a few amongst the sixteen cases treated. They were all of average severity. In most cases the temperature on admission was between 102° and 103°, some, however, being as low as 101·2°. The sixteen cases consisted of three young adults, five children (ages varying from eight to thirteen years), and eight women (ages varying from seventeen to forty-eight years). In two cases pericarditis and endocarditis resulted. These patients—a boy aged thirteen and a woman aged thirty respectively—left the hospital with a mitral systolic murmur. In the former case the patient also developed erythema circinatum over the abdomen and legs, and the female patient had an attack of hyperpyrexia, the temperature reaching 110·4° before the pericarditis. In the remaining cases there were no complications. The following are examples of a few of the cases.

E. W., a female aged twenty-six, general servant, was admitted into University College Hospital on Oct. 4th, 1887, complaining of headache and pains in the hips and knees. There was no previous history of rheumatic fever. On Sept. 30th the patient had slight pain in the left knee. On Oct. 3rd she had pain in the other knee and in both hips, and she took to her bed. Temperature on admission 101·6°; pulse 130; respiration 24. Both wrist joints were found to be swollen, but only slightly painful on movement. There was no pain in the elbows, shoulders, or ankles. Left knee acutely painful and considerably distended. Patella floating, and

this markedly better than on the right side, which, however, was also painful on movement. At 7 p.m. the temperature had risen to 102·8°, and the woman was ordered ten grains of salol every two hours. During the night the temperature fell steadily, reaching 100·8° at 11 a.m. on Oct. 5th. On the 6th the temperature fell to 100°, and on the 7th to 99°. The patient, however, vomited three times on the 6th after her medicine, but this was obviated by giving the salol in soda-water. With the lowering of temperature the pulse fell from 136 on the 4th to 72 on the 7th. The pain diminished in intensity during the 5th and 6th, but she was not quite free from pain until the 7th. On and after the 7th the salol was given every four hours, and at no time during its administration was there any complaint of deafness or noises in the head.

S. H., a female aged seventeen, servant, was admitted on Nov. 7th, complaining of pain in the ankles and swelling of the feet. On Oct. 30th she first felt unwell, experiencing general aching pains in the back and limbs; this continued until Nov. 4th, when the pains "settled" in her ankles. During the evening her ankles and feet began to swell, and the pain became worse. On the 5th the pain and swelling had still further increased, and she began to sweat profusely. On admission, at 3 p.m., both ankle joints were found to be swollen, tender, and there was considerable œdema of the dorsum of the feet and of the front of the legs for some three inches above the ankle joints. Both knee joints were slightly swollen and rather painful. There was some pain in the wrist joints, but no swelling or tenderness. The temperature at 3 p.m. was 101°; at 7 p.m. it had risen to 103°; and at 11 a.m. on Nov. 8th it was again 103°, having fallen to 102° during the night. No medicine was given until 11 a.m. on the 8th, the patient's joints having been smeared with glycerine and belladonna, and hot fomentations applied. At 11 a.m. ten grains of salol were ordered every hour; at 3 p.m. the temperature had fallen to 100°, and at 7 p.m. a further fall to 98·6° had occurred. During the ensuing night salol was given every two hours, and the highest temperature on the 9th was 100°. On increasing the dose to ten grains hourly, the temperature fell to 98·4°. Between the 9th and 10th the temperature kept down. On the 15th, however, it rose to 100°, and on the 16th to 101·4°. The patient, however, had no pain anywhere, and the temperature fell on the 17th to normal. She was discharged on Dec. 5th, having had a relapse on Nov. 21st, which lasted until the 24th. In this case the patient's pain was greatly relieved within 24 hours from the time of administration of the salol, and on Nov. 10th it had quite disappeared.

A. H., a female aged thirty-two, housewife, was admitted at 3 p.m. on Oct. 13th, the eighth day of illness. The patient complained of considerable pain in the ankles, knees, hips, elbows, and

shoulders; the ankles were, however, the only joints swollen. The temperature on admission was 101·8°. Ten grains of salol were given every two hours, the first dose being given at 7 p.m. The temperature in the next twelve hours fell to 99·8°. On Oct. 14th it had reached 100·2° at 11 a.m. The salol was then increased to ten grains every hour, the temperature falling in twelve hours to 99°. For the next forty-eight hours the salol was given hourly during the day, and every three hours at night, and the temperature did not rise above 99°. On the 16th the patient developed a mitral systolic murmur; and on the 25th she had a relapse, with pain in the knee and ankle joints, the temperature rising to 100·4°, probably due to the fact that on the 24th the salol was diminished to ten grains every three hours; this relapse, however, quickly yielded to increased doses, and the patient was discharged Nov. 6th. In this patient the salol caused some nausea, headache, and deafness.

It is not necessary to detail any of the other cases, as they are essentially similar to the above; any slight differences that were noted will be mentioned below. It will be most convenient to discuss the results obtained in these and the other thirteen cases under the following four heads: (1) the rapidity of its action as an antipyretic; (2) its efficacy in relieving the joint pains; (3) the liability to relapses after or during its use; and (4) the production of toxic symptoms.

1. As an antipyretic, salol is decidedly efficacious in rheumatic fever, and, as will have been seen from the cases quoted above, its use is followed by a rapid fall of temperature within twenty-four hours from the commencement of its administration. This rapid fall, however, does not take place, in an adult, unless about ten grains every hour are given. The temperature does not, as a rule, become quite normal until after three or four days. In both these respects salol very closely resembles salicylate of soda, and in a small minority of cases where its use is not followed by a rapid fall of temperature, if salicylate of soda be given instead, the desired fall is rapidly obtained. On the whole, although salol is decidedly efficacious, it is not quite so reliable as the salicylate of soda, but this is probably due to the fact that the actual dose of salicylic acid is smaller in one case than in the other.

2. Its efficacy in relieving the joint pains. In this respect in many cases salol seemed decidedly inferior to salicylate of soda. In several instances the drug produced a rapid fall of temperature in a few hours, but the joint pains were not generally relieved; in fact, in these cases the pains were frequently not markedly relieved for twenty-four hours. In others, salol caused some relief of pain after a few doses of ten grains hourly had been given. Salicylate of soda, as is well known, causes great relief of pain within a few hours of its administration and before it has greatly lowered the temperature. Thus, although the most relief could be obtained

with salol, the results were certainly not so satisfactory as is usually the case with salicylate of soda.

3. Cases of rheumatic fever, as is well known, are very liable to relapse when treated with salicylate of soda, unless the drug is administered for some week or ten days after the fall of temperature and subsidence of the joint pains. This is also true for the cases treated with salol, so much so that it was not at all uncommon for a return of the fever and of the joint pains to occur about the eighth or tenth day. These relapses, however, yielded to increased doses of the drug, and some were probably due to the fact that less salicylic acid was administered than would have been the case if salicylate of soda had been prescribed.

4. Finally, with regard to the point as to whether salol is superior to salicylate of soda in not producing the deafness, noises in the head, &c., so common with the latter drug. Patients certainly do not complain so much of the deafness with salol, and at first sight the toxic effects certainly appear to be less on increasing the dose. However, deafness, headache, noises in the ears, &c., are all found to be produced; so here, too it is probably simply a question of less salicylic acid being given in the one case than in the other. Again, although vomiting is not common after salol, yet, if it be given in ten-grain doses every hour for some hours, in some patients there is vomiting, but usually not severe. Hence it produces all the toxic symptoms, except the peculiar characteristic breathing, which are seen after salicylate of soda, but not in so marked a degree. In some cases where salicylate of soda produced vomiting it was found that salol could be tolerated when given in milk; but here, again, the effect of diminished doses must be considered. As is well known, the administration of salol is followed by the appearance of carboluria; the intensity of the colouration of the urine, however, varies very much in different patients even with the same dose. In some cases the urine becomes quite black, and often it only assumes a marked greenish hue. At the same time the usual test with $Fe_2\ Ch_6$ reveals the presence of salicylic acid. The salicylic acid, however, seems to appear in the urine before the phenol. Thus, in one case, E. H——, who was admitted on Nov. 4th, the highest temperature on that day was 102°, and ten grains of salol every hour were ordered. On Nov. 5th the highest temperature was 100·4°, and salicylic acid was detected in the urine, but there was no evidence of any carboluria. On the 6th the temperature had fallen to normal, but the patient had become very deaf and had been sick; the pain, however, had quite disappeared and there was considerable carboluria. There was here, then, a period during which the salicylic acid was being excreted and the phenyl had not as yet appeared in the urine. On the other hand, the carboluria, once established, persists for a considerable time. Thus, in one case, salol in ten-grain doses was given every

hour during the day and every three hours during the night of Oct. 17th, twelve doses in all being given; and the drug was then replaced by salicylate of soda; yet, although the administration of the drug was stopped on the 18th, the carboluria, which appeared on the 19th, lasted until the 21st. This is, of course, quite in accordance with what is known to occur with carbolic acid urine, the discolouration of the urine lasting for some days after the administration of the acid has been stopped.

From the foregoing account it will be seen that the results obtained with salol are simply those that would be expected, on the supposition that it owes its activity solely to the salicylic acid it contains. The fact that deafness, noises in the head, &c., are not so common after its use is simply from the fact that less salicylic acid is given. Its one advantage appears to be that its taste is more pleasant, but this is of comparatively small moment, as the taste of salicylate of soda can be effectively covered. From the fact that in some cases where salol failed salicylate of soda was successful, and also as the latter drug is more efficacious in relieving the pain, we must conclude that it is the more reliable remedy of the two.—*Lancet, June* 2, 1888, *p.* 1072.

6.—ON ACUTE ARTICULAR RHEUMATISM IN THE NURSING INFANT.

By Henry Koplik, M.D., Physician Eastern Dispensary, New York.

The rare occurrence of acute articular rheumatism in the infant at the breast and the restriction of material within certain limits must make this short paper appear simply in the light of a contribution to the literature of this subject rather than as presenting anything especially striking in the study of the disease. So infrequent is the occurrence of polyarthritis rheumatica in the nursing infant that those authors who have had, perhaps, the best opportunities to study its phenomena have completely ignored its existence. Most of the writers to whom I have had access find little reason to depart very far from the lines first laid down by Bouchut concerning the affection. The types, however, which Bouchut brings forward as characteristic have already been rejected by competent critics (Senator). They cannot be included under the disease acute articular rheumatism in any sense. In presenting the histories of the following cases I have endeavoured to find those characteristics of articular affection and constitutional disturbance which we in later life recognize as classical to the picture of acute rheumatic polyarthritis. The rarity of the disease in such young subjects, I reiterate, may account for the paucity of the material. In these little patients we find the presence of the disease in a number of articulations, the rapid successive involvement of these articulations by the disease, the presence of a certain amount of consti-

tutional disturbance. I have not been so fortunate in the cases I record as to find any symptoms or signs referable to the heart. It is desirable to keep this class of cases distinctly separated in our minds from those diseases lately designated by Gerhardt as *rheumatoid* affections of the joints. The rheumatoid affections of the joints have their counterparts in those obscure joint affections of infancy the pathology of which is still more obscure than that of true rheumatic arthritis, those forms of multiple synovitis, with or without endocarditis, complicating the later stages of the exanthemata.

Case 1.—Female infant, aged six months, nursing at the breast, of good development; no previous illness. Mother states that six days previous to the time when the child was seen by the writer it had developed pain, heat, and redness in the joints of the left foot; this was followed by a similar affection of the left wrist and finger joints of the left hand. There was fever, also some profuse perspiration. When the child was seen the metatarso-phalangeal joints of the great toe and the neighbouring three toes were much swollen, red, and painful; the temperature of the joints was increased to the touch. The dorsum of the foot was swollen and œdematous; the last phalangeal joint of the great toe was swollen, red, and painful. On the left hand all the metacarpo-phalangeal joints, except that of the thumb, were swollen, red, and painful; the left elbow was in the same condition. The last phalangeal joints of the left hand were in the same condition also. The temperature of all the joints was raised to the touch. The body temperature in the rectum was 105·5° F., pulse 180, respiration 48. A profuse perspiration was present, restlessness was extreme, the skin was clear, there was no eruption. Examination of the heart revealed a negative result. The lungs showed the presence of an acute broncho-pneumonia. The urine was normal, the bowels were regular. No other joints subsequently became affected. The temperature gradually began to subside three days after seeing the child. At this time the temperature was 102·5°, pulse 186. The joint affection in the hands and elbow was the same, but the foot was beginning to improve. Five days after the child was first seen by the writer, and on the eleventh day of the disease, a scarlet-fever eruption appeared on the chest and spread over the body. During the stage of desquamation some of the joints remained swollen and painful. This tenderness of the joints did not subside completely until the eighth week after the onset of the rheumatic affection. At no time were there signs of endocarditis.

Case 2.—Female infant, aged nine months, nursing at the breast, of good weight and development; no previous illness of any kind; no history of skin eruption or scarlet fever; no signs of rhachitis present. Ten days previous to consultation the infant had developed redness and swelling of all the metatarso-phalangeal joints

of the toes of both feet. Also all the joints of the fingers became affected similarly after a short time. There were fever, vomiting, extreme restlessness, and cough. The patient showed signs of pain when the fingers were handled. When seen she had swelling of all the joints named on both feet. The infant was very anæmic, and there was an increased temperature over the joints. The skin of the dorsum of the feet was œdematous. The metacarpo-phalangeal joints and all the phalangeal joints of both hands were swollen, red, and painful. The fingers were held in an extended condition, the thumbs adducted, resembling the condition and position seen in athetosis. The temperature in the rectum was 102°, pulse 126. The lungs showed an acute bronchitis. The heart showed nothing abnormal.

On March 30th, nine days after the writer first saw the child, and in the third week of the disease, recovery was complete. Under the influence of treatment the pain in the joints, redness, and swelling had slowly subsided, the child became less restless, and after the time mentioned could be looked upon as completely convalescent. The joints, though stiff, were moved somewhat by the little patient; no signs of synovitis were present.

In Case 1 the tender age of the patient and the complete uncomplicated recovery are to be noted. I had occasion to see the little patient some time after recovery. The joints showed no stiffness or signs of the severe articular disturbance or synovitis. The heart also revealed no endocarditic affection or muscular disturbance. The marked interval between the first appearance of the joint affection and the scarlet rash (eleven days) is notable. There are no other points in Case 1 except the complication of broncho-pneumonia. The typical swelling, redness, and increased temperature of the numerous articulations, and the high fever from the onset of the joint affection, all give the picture of two separate affections (rheumatism and scarlet fever), rather than the complication of the scarlet fever in this case with the rheumatism.

In Case 2 there was no history or symptom which might lead to the acceptance of the presence of scarlet fever before or after the onset of the joint affection, yet the child was said to have been ill with the joint affection for ten days previous to the consultation, and under observation and treatment the joint affections subsided completely in nine days, making a duration of nineteen days. In this case the absence of endocarditis was remarked, and at no time during the height of the disease or the convalescence could that complication be discovered. In this case also the general febrile movement, the swelling, redness, and increased temperature of the affected joints, and the pain in the same, were leading symptoms, and caused the parent to seek relief for the patient in treatment. Here I wish to call attention to the peculiar position of the fingers affected in both hands—that of various degrees of extension with

adduction of the thumb. This position reminds the observer of the picture met with in the forms of athetosis. I have had occasion to see this very same position of the fingers in marked acute rheumatic affection of the phalangeal joints of the fingers occurring in a boy aged ten years. I attribute this peculiar spastic-like position taken by the fingers to an involuntary contraction of the extensors of the fingers (interossei). These contractions are brought about by pain. It is also the position, it seems, which would afford relief, if such were possible, from pain.

There is no subject which is surrounded with more obscurity than that form of rheumatism recorded as accompanying or following the exanthemata. This is notably the case with scarlet fever. Thomas, Bohn, Cadet de Gassicourt, Gerhardt, Litten, Kohrer, and Bokai all have their peculiar views about the nature of this joint affection. As yet there are no exact data of the relation of the one disease (scarlet fever) to the affection of the articulation. Cadet finds rheumatism an epiphenomenon in about one tenth of the cases of scarlet fever. The picture presented in Case 1 of this paper is not that seen, as a rule, in scarlet fever. Here the joints first affected in the majority of cases are those of the hands. The affection sets in after or during desquamation. In the case here presented the articular affection preceded the eruption. There being no doubt on this point, I feel inclined with Bokai to consider such cases rather the rarer complication of true articular rheumatism by a subsequent attack of scarlet fever. Such cases have been recorded by Larcher and Hiller (Bokai). Knowing exactly so little and seeking to gain knowledge on the chief forms of articular rheumatism, we should be inclined to side with these authors.

Writers are by no means so ready to regard the form of rheumatism occurring in scarlet fever as pure articular rheumatism. A. Jacobi, and subsequently Gerhardt, have presented a most interesting view on this subject. Gerhardt excludes these joint affections from the class of true rheumatisms. He regards the possibility in scarlet fever of a mixed form of infection. It is very possible that the scarlatinous poison, as in typhus erysipelas, may manifest itself in an affection of the synovial membranes, as it does in that of the mucous membrane of the mouth, larynx, glands, &c. Indeed, this view is certainly one of the most scientific yet advanced. In Case 1 this view would be difficult to apply, seeing the length of time that elapsed between the affection of the joints and the appearance of the rash. Yet, as most authors (Immermann among others) are inclined to regard rheumatism as an acute infectious disease, its occurrence with scarlet fever is no more peculiar than the occurrence of diphtheria with the same malady. Gerhardt found that joint affections were likely to appear in certain epidemics of scarlet fever, in some mounting as high as 37

per cent. of the cases, in other epidemics being entirely absent. Again, the joints of the hand are mostly affected (85 per cent.) and in most instances the affection is of slight severity (Litten, Bokai). Kohrer found that 6 per cent. of patients with scarlet fever had joint affection, and in 66 per cent. the hands were affected. Trousseau found one third of the patients affected with joint trouble. Lastly, endocarditis is less common in the form of rheumatic joint affection occurring in scarlet fever than in the pure form of the disease (Ashby, Brit. Med. Jour., 1886, p. 971). Finally, if the pure form of acute articular rheumatism is obscure in pathogeny, its various subforms are still more so. It is, therefore, peremptory in diagnosis not to obscure classification by recklessly applying the terms rheumatic and rheumatoid to all possible joint or muscular affections, and this is more the truth in infancy. Here a number of affections in a hasty examination may be easily confounded, and I will only glance at some of the more important joint affections which in their incipiency or outset may resemble acute rheumatism, though they can hardly be said to be difficult of diagnosis.

In every infant the subject of a joint affection suspected to be rheumatic, the heart naturally receives a good share of attention. Yet I know of nothing more difficult than the determination of an adventitious sound in the heart of these little patients. The over-confident diagnosis of cardiac murmur in these infants will often account for the good prognosis given by some clinicians to cardiac disease of infancy and later childhood. I refer to the ultimate disappearance of murmurs, or so-called cardiac dilatations. Error is easily made in these infants for many reasons: The restlessness of the patient, the great rapidity of the heart's action, the difficulty of distinct localization over the limited area of a small chest, sometimes distorted by the processes of rhachitis. I have not infrequently found adventitious sounds, heard at the base of the heart and also at the apex, disappear after the cessation of fever or a diminished rapidity of cardiac action. These murmurs, heard as I have heard them in the course of exanthemata, must be regarded as dynamic. Murmurs occurring with the first sound and disappearing after a few days, as above mentioned, I have always regarded as not referable to the endocardium.

It is imperative in all cases to wait for a slower cardiac action, or to reduce the number of heart-beats with artificial means (digitalis), before entering the diagnosis of endocardial complication. The nursing infant, we conclude, is not exempt from the liability to attacks of acute rheumatism. In these little patients endocarditis may be absent. This latter fact only strengthens the belief generally entertained by authors (Gerhardt), that the prognosis of rheumatism, good as it is in the adult, is still better in infancy and childhood.—*N. York Med. Jour., June* 23, 1888, *p.* 673.

7.—ON THE USE OF INJECTIONS OF OSMIC ACID IN MUSCULAR RHEUMATISM.

By Dr. Grinevitski, Rostoff on the Don.

In No. 24 of the *Russkaya Meditsina*, 1886, I published some cases of muscular rheumatism in which I had employed osmic acid in the form of hypodermic injections. These cases, though not very numerous, were tolerably characteristic, and bore out the suggestion first made, I believe, by myself, as to the advantages of a persevering use of this method of treatment.

At the commencement I employed osmic acid in quantities of from three to six drops of a one per cent. solution for a single injection—the same doses in fact in which it is recommended in cases of neuralgia. At the present time the doses given internally are from the one-sixtieth to a quarter of a grain per diem, and the hypodermic doses should therefore be about half as great. A very important case however that has occurred in my practice proves that these doses may with great advantage be increased. The case was that of a patient named Vikulin, belonging to the town of Maïkop, a merchant, thirty-three years of age, tall, of good constitution, and well nourished, who for the last two years had suffered from severe pains in the dorso-lumbar region, especially on the right side, extending to the lower extremities and being most felt in the right leg. These pains seemed to have their seat in the lumbar muscles; they were much increased by local pressure with the finger, as also during changes in the weather. The pain was so considerable at night that the patient scarcely got any sleep. No morbid physical signs could be made out either in the lumbar region or in the legs. For about two years the patient had suffered from difficult and painful digestion, due apparently to acid dyspepsia. The tongue was coated; the patient sometimes had a desire for food, but as a rule he ate little, because after even a scanty meal he had pain and tenderness in the region of the stomach which were increased by pressure; the bowels were confined; besides, he frequently had palpitation, due, as it seemed, to derangement of the digestive functions, the size and sounds of the heart being normal, and the palpitation coming on during or soon after a meal. The kidneys acted normally. During his two years' illness the patient had frequently had medical advice, but had derived but little benefit from it. When Mr. Vikulin first came to me for advice last winter complaining of lumbar pain, I gave him an injection of a Pravaz syringeful (about twenty-five minims) of a five per cent. solution of salicylate of cocaine in the lumbar region each day for three successive days. These injections were given in the morning, and for some hours afterwards the pain was much less, but at night it returned in all its old intensity, giving him no rest and being especially severe when he

turned round in bed. I then determined to administer a fourth and final injection of the salicylate of cocaine, but by mistake injected instead a whole syringeful of a one per cent. solution of osmic acid, equivalent to about a quarter of a grain of the pure acid. Immediately afterwards the patient felt a severe burning pain in the lumbar region, and, as this did not diminish in the course of twenty minutes while the man was lying on his face, I sent him home, without of course revealing my mistake to him, and told him to go to bed and apply cold compresses to the loins. I was much alarmed by the thought of the chances of phlegmonous inflammation or even sloughing, considering the large dose of osmic acid I had given. I was consequently much gratified by the patient appearing the next day with a cheerful expression and the intelligence that he had had the first good night's sleep for two years, being able even to turn round in bed without pain. He said that the burning pain had only lasted for about two hours, and then had completely disappeared, so that he had not gone to bed or applied cold compresses as I had directed. On examination I found the skin very red around the puncture over an area the size of a hemp seed, and tender on pressure over an area the size of a florin, but with no appearance of swelling. After the patient went home I prescribed for his indigestion two grains of Finkler's papain with six of milk sugar, as a powder an hour after meals, to be followed by a tablespoonful of a mixture containing bicarbonate of sodium, aromatic spirit of ammonia, carbolic acid, and glycerine.

When the patient came to me the next time some three months later he reported that the pains in the loins and in the lower extremities had been less, and that his nights had been but rarely disturbed. Upon examination I found that there was still a good deal of tenderness on pressure in the lumbar region. His digestion was perfectly normal, his appetite good, and there was no pain over the region of the stomach after meals; the bowels too were no longer confined. I administered three injections into the parenchyma of the lumbar muscles of from eight to fifteen drops of a one per cent. solution of osmic acid on three successive days. At the present time, according to the account given by the patient when I saw him several months afterwards, the pain in the loins and in the legs have completely disappeared and he is able to walk easily and to sleep well.

The case has a scientific and practical interest, showing as it does that a whole Pravaz syringeful of a one per cent. solution of osmic acid may be injected into the muscular tissue without giving rise to serious consequences either of a local or a general character. At the present time I give in muscular rheumatism an injection, into the parenchyma of the muscle, of eight drops of a one per cent. solution of osmic acid and gradually increase the dose up to a

syringeful, having regard to the different susceptibilities evinced by different persons, especially women, to this remedy. Large doses of osmic acid have two advantages over small ones. First, fewer injections are needed, and consequently there are fewer punctures, and it is these that set up the burning pain which constitutes the main objection to this mode of treatment, and secondly, large doses act more promptly and with greater certainty. These injections I administer both in chronic and in acute rheumatism without employing any other external or internal remedy. I have not had a single case either in private or in hospital practice where this treatment has not produced a considerable improvement, and in the great majority of cases complete recovery has taken place after two injections, in rare instances as many as six being required. I have not seen any cases where the affection has returned.

Let me now say a word or two about the action of papaïn, which proved so successful in the above-mentioned case. In all cases of indigestion, in dyspepsia and in chronic cases associated with acid eructations with painful gastric fermentation, I order—when the patient is well enough off to afford an expensive drug—Finkler's papaïn in not less than two-grain doses with milk sugar one or two hours after meals. I direct these powders to be taken in a spoonful of the alkaline mixture mentioned before. This has a good effect on the pain occasioned by acid fermentation while chymification is going on, by neutralising the acid as it is formed. For this condition papaïn is unrivalled as a remedy; it causes hard food to be digested, and the fibrous tissue of meat and vegetables is dissolved by its means. I have by this method of treatment completely cured some long standing cases of dyspepsia of the most obstinate description associated with gastric pain and with constipation. Of course I at the same time took care to attend to the general habits, and especially the food, of the patients. The way in which Mr. Vikulin's case yielded to papaïn appears to be very characteristic. (Translated from the Russkaya Meditsina (No. 23, 1888), by Theodore Maxwell, M.D.)—*Practitioner, Sept., p.* 198.

8.—ON THE FUTURE OF ERYTHROPHLÆINE—THE NEW ANÆSTHETIC.

By the Editor of the Therapeutic Gazette.

Since the discovery of the anæsthetic properties of cocaine, no drug has more rapidly attracted attention than the new anæsthetic, haya erythrophlæine, described by Lewin. His paper, published almost simultaneously in America in the Gazette, in Berlin, London, and Vienna, at once called forth a series of experiments by a number of different observers, some of whom have confirmed his results, but many seem to be antagonistic to his conclusions. The future of this drug is therefore an undecided one. For where such

emine nt observers are found on opposite sides of a question, the only explanations that suggest themselves are either, as we mentio ned in our last issue in reference to Mr. Tweedy's denial of Le win's claims, that there was a difference in the samples of the art icle being experimented with, or that some error of observation was accountable. The most remarkable criticism which Dr. Lewin's art icle has called forth was made before the Berlin Medical Society on Feb. 8, 1888, where Liebreich, the discoverer of chloral, denies th e vegetable origin of this substance, claimed by Lewin to be the ac tive principle of *Erythrophlæum judiciale*, and attributes the active principle of the preparation used in his experiments to the poison of the venomous serpent, the Naja Hayé (*Wiener Med. Blätter*, No. 8, 1888). Further than this, he questions the explanation which Lewin has given as to the action of this substance. He denies that the so-called erythrophlæine is an anæsthetic in the sense in which cocaine is an anæsthetic, and he speaks of it as an inhibitory drug, and compares the effects produced by instillation in the eye to the results which follow section of the sympathetic nerve; in other words, a paretic effect of the fibres of this nerve. He supports this statement by claiming that, while cocaine removes simultaneously the sensibility of the cornea, conjunctiva, and sclerotic, erythrophlæine only dulls the sensibility of the sclerotic coat. Liebreich thus claims that this drug does not produce anæsthesia of the eye in the strict sense of the word, but produces muscular paralysis of the eye, and he finds a similarity between its action and that of antipyrin and aconitine. Schoeler on the other hand (*Revue Gén. de Clin. et Thérap.*, Feb. 23, 1888), in opposition to Liebreich, attributes the phenomena produced by erythrophlæine to paralysis of the terminations of the trigeminal nerve. He has experimented in this connection on man, and claims that with a drop of a two-tenths per cent. solution placed in the eye, first a sensation of burning with conjunctival hyperæmia is produced, and then the cornea becomes anæsthetic,—a state of affairs which lasts for two hours, and then is accompanied by the subjective perception of colour-rings.

Comparing erythrophlæine with cocaine, he is of the opinion that its action is slower but more prolonged; an opinion which also appears to be shared in by Dr. Koller, who introduced cocaine. On the other hand, Renas states that he has been able to produce with this drug but the most imperfect and transient anæsthesia.

Dr. Karewski (*Deutsche Med. Wochen.*, Feb. 23, 1888) has likewise contributed a series of experiments as regards the action of this drug, which, in the main, would appear to confirm those of Lewin. He has found that the drug works differently on different individuals, and that, as in the case of cocaine, the previous production of anæmia of the part facilitates the production of anæsthesia. In no case, however, did Karewski succeed in producing

complete anæsthesia; for even in the most complete action, when its injection was combined with a simultaneous production of anæmia of the part, the sensation of touch still remained, although that of pain was removed. Thus, a needle might be stuck into the anæsthetised part without producing a painful sensation, and yet its presence be readily recognised by the production of sensation. On the nasal mucous membrane half per cent. solutions applied on tampons were capable of producing analgesia after about eighteen minutes' application. Applied to the skin it produced no effect whatever. The disadvantages of its action are, in the first place, the long time which elapses before analgesia becomes complete, the uncertainty with which complete anæsthesia is produced, and the disagreeable symptoms which often accompany its employment. Karewski would therefore restrict the employment of this drug to the removal of excessive granulations. Goldschmidt (*Centralb. fur Klin. Med.*, No. 7, 1888) seems to be about the only one who can thoroughly confirm Lewin's statements. He claims that one drop of a one-tenth of one per cent. solution produced in ten or fifteen minutes anæsthesia of the conjunctiva and cornea lasting for three or four hours, or even in some cases for twelve hours, and that the duration of the anæsthesia may be prolonged at will by repeated instillations of the drug. He has found that in the rabbit the cornea may be cut through without any evidences of pain, yet seizing the iris with forceps was evidently painful. Similar results have been obtained by him on man, complete anæsthesia being obtained by one or two drops of a one-tenth of one per cent. solution in fifteen minutes, accompanied, however, with slight burning and heat in the eye,—which, however, when the state of anæsthesia is reached, are claimed to disappear. Its use is said to be accompanied by no alteration in the pupil, accommodation, or sense of vision. Goldschmidt finds that the use of this drug is accompanied by dilatation of the blood-vessels, a fact which would tend to render the scope of its employment more restricted than that of cocaine, whose action is accompanied by vascular contraction; yet he would prefer its employment to cocaine where an anæsthetic influence is alone required, since it is free from the action of the latter on the pupil, accommodation, and intraocular pressure.

From these contradictory results naturally no conclusion can yet be drawn as to the exact status of this drug. Time alone may enable us to tone down the extravagant statements of the supporters of this drug or to find explanations of the objections of its antagonists. We have, at some length, given both sides of the question as to the action of this article, and can only hope that subsequent observers will warrant the addition to our pharmacopœia of a drug which must prove so valuable as a new local anæsthetic.—*Therapeutic Gazette, April* 1888, *p.* 246.

9.—ON METHYLENE AS AN ANÆSTHETIC.

By William H. Day, M.D., Physician to the Samaritan Free Hospital for Women and Children, London.

Attention is just now being drawn to the action of methylene, and its claim to certain advantages over other anæsthetics. Having had with Sir Spencer Wells some considerable experience in the administration of methylene, and its subsequent effects during the period of convalescence, I am tempted to offer a few practical notes.

It is a mystery to me that an anæsthetic so safe and effectual as methylene should not have been more generally employed by the profession. A few deaths have been imputed to it, it is true, and occasional deaths will occur from any anæsthetic, however carefully administered, but notwithstanding, I think, methylene occupies in point of safety a first class position. Some years ago the late Mr. Peter Squire asked me whether I considered methylene possessed any advantages over chloroform, and I replied in the following words, which will be found in his Companion to the British Pharmacopœia:—"It is less likely to cause vomiting, it is more agreeable to inhale, and there is less excitement preparatory to the stage of anæsthesia; rarely more than three or four drachms are required for an operation lasting half an hour, and consciousness returns in a few seconds after inhalation is discontinued."

My conviction of these merits remains unshaken. We should always bear in mind that all patients do not behave alike under an anæsthetic, whether it be ether, chloroform, or methylene. The young bear anæsthetics better than the middle aged. The strong and the vigorous, and those of sanguine temperament, resist the action more than those who are nervous and phlegmatic; they are longer in getting under the influence of it, and it sometimes requires much patience and tact before complete muscular relaxation and tranquil sleep are established. If such patients have been intemperate the difficulty is all the greater, and I have felt on these occasions some anxiety, though I have never yet failed to narcotise them. Men do not take anæsthetics so well as women. If young and healthy there is more struggling and resistance, and after the middle period of life fatty infiltration of the heart is more common in the former, and they indulge to a greater extent in alcoholic stimulants. Children are quickly narcotised, and danger is scarcely ever present. In patients who lead temperate lives, and whose heart and lungs are healthy, almost any anæsthetic may be safely administered; it is when these organs are damaged that death from asphyxia or syncope sometimes ensues. In abdominal tumours of long standing, with a large quantity of peritoneal fluid, the diaphragm is pressed upwards, and the lower lobes of the lungs are so compressed that very little

breathing space is left, and hence the danger of suffocation if the anæsthetic is not given sparingly and slowly. Slow administration is in itself a safeguard. In such cases the shoulders of the patient require to be well elevated, and the mask of the apparatus not brought so near the mouth as to exclude the free admission of atmospheric air into the lungs. In these cases of pulmonary oppression the patient may become livid after a few inhalations, and be seized with a convulsive, choking cough, which embarrasses the operator, but as the ascitic fluid escapes, and the tumour is removed, freer respiration is established, and then the remedy can be pushed to full narcotism, more particularly when the abdominal distension is of recent date. It is in disregard of this warning that fatal consequences may result.

When the abdomen is distended with fifteen or sixteen quarts of fluid, and contains a multilocular cyst, weighing eight or nine pounds in addition, the umbilicus may reach a higher level than the nose of the patient as she lies on the operating table. In such a case slow and cautious administration is demanded, and as I have before said some of the fluid must be withdrawn before the patient can take a full inspiration. At this stage we cannot push the methylene beyond partial anæsthesia.

When mucus accumulates in the mouth, I am in the habit of twisting one end of a pocket-handkerchief round the forefinger of the right hand, and wiping it away. This simple practice prevents the mucus from collecting at the back of the pharynx, whilst it facilitates respiration, and prevents the choking cough.

When the pulmonary organs have been long pressed upon, or the heart displaced, bronchial irritation sometimes comes on a few days after operation, as the lungs undergo expansion, and the pressure is removed. This is all the more likely if a considerable quantity of the anæsthetic has been administered. Such complications are rare in recent abdominal distension, but in old standing cases where the lower ribs are bulged outwards like a fan this risk is frequent, and ought to be calculated upon. In these cases the heart becomes weak; it is often displaced upwards, and prone to take on degenerative change.

As to the existence of a cardiac murmur, undue importance may be attached to it. It is not always easy to diagnose a functional from an organic murmur, but where the pulmonary circulation is free, I never hesitate to recommend methylene as an anæsthetic. The pressure resulting from a large abdominal tumour may give rise to a soft cardiac murmur, which means nothing at all, if the muscular structure of the heart is vigorous enough to overcome any distension of its cavities, but we must not overlook the fact that long-standing upward pressure tends to invite feebleness of the heart's action, thin walls, and degenerative changes. Sudden death at the time of operation, or soon after it, has to be reckoned with.

I have safely given bichloride of methylene to patients suffering from heart disease on many occasions; in dilatation and weakness of the organ, and in mitral change with hypertrophy. When there has been considerable distension of the right and left cavities of the heart from valvular defects I have never hesitated to use methylene if an operation has been urgent, even if the cardiac trouble has considerably impaired the pulmonary circulation. I am doubtful whether there is any other anæsthetic to supersede methylene in this condition. I have ascertained, before commencing the administration, that the heart was weak, or its valves damaged, and yet, in spite of this, the pulse has frequently improved in quality to the surprise of bystanders, and the patient has looked a far better colour at the close of a tedious operation than at the commencement. The bichloride has acted as a cardiac stimulant throughout. Exceptions are sometimes met with, and in these cases I invariably resort to brandy during the administration, never pushing the methylene to such an extent as to interfere with swallowing. I have given, during a long and desperate operation, as much as six ounces of brandy, and I am convinced that this precautionary measure has carried the patient safely through. I never trouble myself about the pulse; the countenance and the respiration are my guides. No hard-and-fast lines can be drawn. One patient can be sent into tranquil sleep with three drachms for half an hour, and a very exceptional case will require three times the quantity. Twelve drachms is the largest quantity I have ever given for an operation lasting one hour, and I have no remembrance of Sir Spencer Wells being a longer time than this over his worst operations.

I have known many cases of pleuritic effusion in ovarian disease, and when recent and serous I have advised the abdominal section before tapping the thorax, and in every such case where there has been enough breathing space left I have not been anxious. The effused liquid has disappeared from the chest without operative interference.

I have administered methylene with the best effects in cases of advanced phthisis with a large cavity in one lung, and softening going on in the other.

I do not think I have over-estimated the value of methylene, as in 1,230 cases I have not met with anything to alarm me. It is the most harmless of anæsthetics; it has never disappointed me, and I feel sure that those who will give it a fair trial will record a similar experience to my own.

It is not in healthy individuals that danger is to be apprehended from the employment of an anæsthetic. It is in the diseased and feeble, who have been reduced by pain, sleepless nights, and long suffering. In such cases as these Dr. Frederic Hewitt advocates the anhydrous ethylic ether, or the A. C. E. mixture. ("On the

Production of Anæsthetic Sleep in Patients suffering from Grave Constitutional Disease," The Lancet, May 26th, 1888.)

Dr. Richardson introduced methylene bichloride in 1868-9, on a distinct principle—namely, that all the chloride anæsthetic series are excitants by reason of the chlorine. He therefore considered that by reducing the chlorine he reduced the danger. He used first methyl chloride (CH_3 Cl); but, this being a gas, he found a difficulty in using it, because, unless it were given in the pure form from a large reservoir, when he found it a most perfect anæsthetic, it could only be given from a fluid in which it was condensed, and from which it escaped, producing extreme cold. He proceeded next to methylene bichloride (CH_2 Cl_2), or one equivalent less of chlorine than chloroform (CH Cl_3); and, after getting it in the pure state and inhaling it himself as a trial, he administered it successfully to a patient, Sir Spencer Wells being the operator. Dr. Richardson's argument has throughout been that methylene is safer than chloroform, because it is a lighter body, is more easily diffused, is more equable in action, and is less of an excitant. My experience confirms these conclusions to the letter. —*British Medical Journal, July* 14, 1888, *p.* 72.

10.—ON THE INDICATIONS FOR THE USE OF THE KREUZNACH WATERS IN STRUMOUS DISEASE.

By Dr. Heusner, Kreuznach.

The motive which leads me to publish this article is the fact that patients are frequently sent from England to Kreuznach suffering from diseases for which the waters of this place are not suitable, while, on the other hand, many persons, for whose successful cure reasonable hopes might be entertained, are not ordered to Kreuznach at all.

General Treatment of Struma.—In the treatment of strumous diseases it is pre-eminently necessary to bring about an improvement in the constitution. The treatment of local affections, though frequently indispensable and very beneficial to the constitution, is seldom in itself sufficient, and will certainly be facilitated and rendered more efficient by the adoption of a suitable general regimen.

Kreuznach Treatment.—The question which I propose to answer is whether a course of the Kreuznach waters is beneficial in all cases of struma, and under what circumstances their use is contra-indicated. I am unable to answer this question by quoting statistical data, partly because a physician practising at a watering-place is apt to lose sight of the majority of the patients after too short a time, and partly because it is extremely difficult to give a decided opinion as to whether the strumous taint is definitely and totally eradicated. In many cases one cannot speak with certainty

of a cure, but only of a general improvement. The result of my observations goes to prove that this improvement of the constitution has been attained, with very few exceptions, in nearly all cases after a steady and persevering course of the Kreuznach waters. In many cases the local symptoms so greatly predominate over the constitutional that the improvement of the former directly indicates the degree of constitutional amelioration. The favourable climate, and the possibility of exactly regulating the desired curative action, make a visit to Kreuznach advisable for individuals of the most opposite and varying constitutions. In some cases, however, the hopes entertained with regard to Kreuznach have been doomed to disappointment, simply because people imagine that a single stay—and that often of very short duration—is sufficient to effect a cure. It is, however, only in very slight cases that a single course of treatment suffices; deep-rooted constitutional affections cannot be so easily eradicated; they necessitate not only repeated and lengthened visits to Kreuznach, but also continuous and careful dietetic treatment; while a subsequent stay at the seaside, or in the mountains, &c., is frequently indispensable.

Contra-indications of the Kreuznach Treatment.—Some complications of strumous disease make a course of Kreuznach waters futile, while others render it objectionable. For instance, I consider it distinctly contra-indicated in decided tubercular disease of the lungs; also in disease of the kidneys at an advanced stage, and in any chronic state of feverishness, from whatever cause. But when slight manifestations of fever are kept up by a strumous affection which, from its very nature, seems to point to Kreuznach as a place where an improvement is to be hoped for, a trial may fairly be made—more especially when it is impossible to attack the disease at its seat, as is the case, for instance, with caries of the vertebræ. Particular care should be exercised with patients suffering from valvular disease of the heart, or from degeneration of the heart-muscle, as the Kreuznach baths often unfavourably influence these complaints. Nor does the warm, dry climate which generally exercises such a beneficial influence on strumous persons, always suit patients suffering from asthma. I have not witnessed any favourable results from the use of the Kreuznach waters in cases of leukæmia or malignant lymphomata (pseudo-leukæmia, Hodgkin's disease, *adénie*), nor in cases of cancer or sarcoma.

The Kreuznach Treatment in Glandular Enlargements.—The obstinacy with which glandular affections resist any treatment is well known, and the question arises whether it is not advisable to extirpate the diseased glands at once before seeking other remedies. A source of tuberculosis is thus removed that might endanger the general health. My opinion is that, as long as the glands do not show decided signs of suppuration, weighty reasons may be urged

against their extirpation, one frequent obstacle being the impossibility of removing all the diseased glands. Besides which, the scars of the operation are permanent. A still weightier reason against the operation is, that an outbreak of general tuberculosis has been known, in some cases, to follow immediately on the extirpation of the glands. Even glands that are already softened are capable of reabsorption, as well as the hard tumours mentioned in the preceding sentence. When suppuration has commenced, however—especially if accompanied by feverish symptoms of a more serious kind—surgical treatment undoubtedly affords better prospects of a rapid cure with small cicatrices than any other treatment. But, among the non-surgical curative methods, the treatment pursued at Kreuznach is certainly that most adapted to cause indolent glandular swellings to decrease in size, and even to be entirely reabsorbed. In order to put a stop quickly to suppuration, when it has become established, and to promote cicatrisation, a course of Kreuznach waters is frequently a most valuable addition to the surgical treatment. The above remark also applies to cold abscesses, not originating from glandular disease, from which scrofulous people often suffer.

In Skin Disease.—As to eczema and other superficial skin diseases of a strumous nature, they are cured with surprising rapidity by a course of Kreuznach waters. In lupus vulgaris success is more doubtful, though I am of opinion that a relapse may be considerably retarded by a course of Kreuznach. But as, in this insidious disease, no one is secure from the danger of a relapse even after several years, I do not venture to assert that the cure is definitive and permanent.

In Catarrh.—Chronic catarrhs of the various mucous membranes, the obstinate nature of which is well known, are, without exception, favourably influenced by the Kreuznach waters, though of course deeply degenerated mucous membranes cannot be restored to their normal state. This has special reference to the almost unavoidable coryza of strumous patients. In the various catarrhs of the pharynx and fauces, the effects of Kreuznach treatment are most favourable. Adenoid vegetations of any considerable size are not, it is true, diminished by its use to any noticeable degree; but small lymphatic follicles may disappear from the back wall of the fauces. Hypertrophy of the tonsils, it may as well be mentioned here, is but seldom cured or even notably decreased.

In Ophthalmia.—The success attending the treatment of strumous affections of the eyes is particularly striking when the object is to prevent the endless relapses of keratitis. Although the opinion of a considerable part of the medical profession is opposed to the use of Kreuznach waters in florid inflammations and ulcerations, nothing in my experience justifies the laying down of such a contra-indication.

In Ear Disease.—The effects obtained in diseases of the ear are less striking. Catarrh of the middle ear often leads to deep degeneration, shrivelling, adhesions of the mucous membrane, &c., which render all hope of a cure futile. Nevertheless some of the dangerous suppurations of the middle ear, whether connected with an affection of the bone or not, have actually been cured at Kreuznach.

In Bone and Joint Disease.—In speaking of affections of the joints and bones the difficulty is to define the limit beyond which a surgical operation becomes necessary. We have certainly seen several cases cured at Kreuznach in which most surgeons of the present day would have advised an operation. In other cases the removal of the bone, whether desirable or not, is impossible. On the whole I incline to the belief that it is safer, especially when the joints are involved, to operate a little too soon rather than to delay too long. This particularly applies to adults. Among the advantages of such a course we may mention that the transfer of the invalid to Kreuznach, in order to have his strumous ailments attended to after an operation, is generally attended by less difficulty. Besides, should an operation become necessary during the course of treatment, it causes a very unpleasant interruption of the cure. For the definitive and final healing of wounds and ulcerations, the waters of Kreuznach have always proved excellent. Kidney diseases, such as are associated with suppuration of the bones, I have also seen cured when attacked in the beginning, but not after having been allowed to develop fully. Though I have by no means exhausted the list of strumous diseases, nevertheless I think that the foregoing considerations will suffice to determine in each particular case the desirability of a course of the Kreuznach waters.—*British Med. Jour., May* 5, 1888, *p.* 951.

11.—ON THE MINERAL WATERS OF BRIDES-LES-BAINS AND SALINS-MOUTIERS.

By P. Delastre, M.D., Brides and Salins-Moutiers.

Brides is a charming little village, situated in one of the most picturesque parts of Savoy, five kilomètres and a half from Moutiers, the chief town in the prefecture. The village stands at an altitude of 1,800 feet above the level of the sea. Situated in a valley, it is sheltered particularly from the east, west, and north winds; yet the pure air of surrounding mountains and glaciers of the Tarantaise is invigorating and refreshing to the most delicate constitutions. The country around is remarkable for its picturesque beauty and the variety of its scenery. Brides is accessible from Paris, in about fourteen hours, by the Lyons and Mediterranean Railway. The season is from the middle of May to October. The hotel, lodging, and bath accommodation is excellent.

The springs supply abundant water at a temperatura of 95° F.; they are alkaline, and powerfully diuretic and slightly aperient, containing, as the chief ingredients, sodium chloride, sodium sulphate, magnesium sulphate, with smaller proportions of the alkalies, carbonates, and free carbonic acid, which imparts to them a limpid and slightly sparkling character. The water presents many of the qualities of the famous Carlsbad springs, and, besides possessing valuable diuretic and aperient action, is also tonic and invigorating in debilitated constitutions. Its effects will be found to be especially serviceable in the various forms of functional derangement of the gastro-intestinal tract, especially when associated with abdominal plethora depending on chronic gastro-intestinal catarrh, and congestion of the liver or spleen with constipation. Cases of biliary colic, lithiasis, and functional derangement of the liver, the result of prolonged residence in India and other tropical countries, are almost invariably benefited by their use. In a brochure which I lately published, termed "Etudes sur les Eaux Minérales de Brides-les-Bains et Salins-Moutiers," I have treated specially of the physiological and therapeutic properties of the various springs. Their action is remarkable in assisting to restore healthy nutrition, and particularly in favouring the elaboration of cholesterine in the liver, and also the elimination of the products of urea and of phosphatic salts by the kidneys. Their use would seem also to favour oxygenation of the blood and the formation of hæmoglobin, at the same time diminishing the tendency to obesity in those so disposed. In gout generally, and specially in atonic cases, the effects are often remarkable. I have found diabetic patients also improve very much under treatment.

The springs of Salins-Moutiers, the natural temperature of which is about 96° F., are rich in sodium chloride, and also contain iron and arsenic. Their properties are even more marked than those of many other waters which possess a similar action, such as Kreuznach, Homburg, Manheim, and Kissingen. The springs are less than two miles distant from those of Brides. Their use is of great value in children of rachitic or scrofulous constitution, in anæmia, chlorosis, and other debilitating conditions in women. In affections of the uterus and appendages, they are of much service. In disordered menstruation, amenorrhœa, dysmenorrhœa, and leucorrhœa, and in fibroid tumours of the uterus, with uterine engorgement, their use is attended with marked benefit. These waters are often of service in conjunction with the use of those of the neighbouring springs of Brides. Dr. Hermann Weber, in his chapter on climate and health-resort in the "Book of Health," refers to Brides and Salins-Moutiers as "among the best summer health-resorts, not only for its springs, but for its delightfully salubrious air."

Were the valuable properties of these springs more widely

known, as well as the natural charms of the district in which they are situated, I feel sure they would be largely taken advantage of.—*Brit. Med. Journal, May 5, 1888, p. 952.*

12.—A MODE OF OBTAINING VACCINE LYMPH WITHOUT PUNCTURING THE VESICLES.

By W. C. Gaiger, M.D., Physician to Queen Charlotte's Hospital.

The present method of taking lymph for vaccination purposes is coupled with so many inconveniences, not to say dangers, that I feel sure medical men will gladly welcome any suggestion which will dispense with the necessity for puncturing the vesicles at the risk of obtaining a lymph contaminated with blood, or of favouring the occurrence of subsequent inflammation.

The method which I have adopted for some time past for the extraction of lymph from the pock has, so far as my present experience goes, a double advantage, namely, that the supply of lymph obtainable from each vesicle is greater and its efficiency is increased. Out of upwards of 200 infants vaccinated by me during the past few months, I have not as yet had one ill-developed pock nor a single failure of a punctured spot, although many of the cases were from vaccine obtained from very young infants. As a general rule, I only vaccinate in four places, principally on account of the young age of the infants I am called upon to vaccinate. Down to December 31st, 1886, I had vaccinated altogether 2,085 infants, of whom, with one exception, all were successful either at the first attempt or at the second. The unsuccessful case resisted four successive attempts to vaccinate, for which no explanation can be given. The mother had never had small-pox.

A complete failure in all four spots on a first vaccination was comparatively rare, and could, as a rule, be traced to a deficiency in the lymph, for it seldom or never occurred when the lymph was obtained from children of three months old and upwards. It generally happened when the lymph was drawn from an infant less than a fortnight old, at which age the quantity of lymph is very scanty, and its efficacy below the normal. It is seldom possible to vaccinate successfully more than a dozen children from one such infant; and failure in one, two, or three spots is not uncommon.

I may remark incidentally that where one or more punctures had failed to take, revaccination of the infant with lymph obtained from its own successful pock generally ensured a satisfactory result, the primary pock or pocks remaining quiescent until the pocks which followed the second vaccination arrived at maturity, that is, at about the eighth day, when they all faded away together. In these cases it was impossible to say from appearances, by the eighth day, which were the primary and

which the secondary pocks. In only one case did this method of re-arm-to-vaccination fail, and no better results were obtained when lymph from other sources was substituted for its own. I had, therefore, to be satisfied with the two successful primary pocks.

My system of obtaining lymph is as follows: I drop a small bead of pure glycerine upon the centre of each pock, and then gently rub the top of the vesicle with a smooth, blunt instrument (the round glass head of a shawl pin does excellently). After the lapse of two or three minutes the bead of glycerine will have increased to nearly double its size, especially if the vesicle contain a good supply of lymph. If necessary, a second drop of glycerine may be applied after the first has been used, and even a third.

This plan avoids the risk of drawing blood, which at times it is not easy to escape doing when puncturing the vesicles. Moreover, not having to hold the infant's arm, there is no fear of capsizing the child, the possibility of which adds to the difficulty of arm-to-arm vaccination where many children have to be vaccinated from one.

I should be glad to hear whether, in the hands of other practitioners, the same good results are obtainable. I have only given the method a four months' trial so far, which is, perhaps, hardly sufficient to authorise any definite conclusion.—*British Medical Journal, April* 14, 1888, *p.* 792.

DISEASES OF THE NERVOUS SYSTEM.

B.—ON CEREBRAL BIRTH PALSY.

By W. R. Gowers, M.D., F.R.S., Assistant Professor of Clinical Medicine in University College, London.

[In the clinical lecture from which the following excerpt is taken, Dr. Gowers gives as a text the narrative of a typical case of cerebral birth palsy occurring in a boy. No special difficulty in his birth was known, but at twelve months old it was noticed that on attempting to stand his legs became stiff and the erect posture was impossible. His arms were fairly strong, but they were habitually semiflexed at the elbow, with some rigidity, and the fingers were in constant slow movement. At the time of observation, his eighth year, he could not read and he could not even repeat the alphabet correctly, and his power of attention was manifestly weak. The knee jerk was excessive, and a foot clonus could be obtained. After brief reference to peripheral and spinal birth palsies, Dr. Gowers proceeds to discuss fully that form which is due to damage to the brain, as follows:]

The third kind of birth palsy—that which depends on an injury to the brain—is of much greater practical importance than the others. It is not only more common, but its symptoms are wide in

extent, often severe in degree, and, moreover, they are permanent instead of transient. In most cases there is a history of difficult parturition, sometimes of a labour that was only ended by the forceps; in many instances the head of the child presented unmistakable external signs of the compression it had endured. In some cases, again, direct evidence of a morbid state of the brain was afforded by the occurrence of convulsions during the first few days of life, convulsions that were general or local, and in the latter case may have been accompanied by distinct loss of power. Moreover, the majority of these cases are in first-born children, and it is notorious that first labours are more prolonged and involve more danger to the child than others. When the labour was not the first, it is generally known to have been either one of exceptional difficulty and duration, or else an "unnatural labour"—that is, a labour in which the head of the child was born last. Of twenty-six well-marked cases of this affection, of which I have notes, the child was the first-born in no less than sixteen, or at least three times as many as would have been without some causal relation to the fact. Of the remaining ten, the head was born last in no less than six. Thus, either the labour was the first or was "unnatural" in no less than twenty-two out of twenty-six cases. Of the remaining four, in three it was known to have presented special difficulty—in two, for instance, preceding children had died during birth in consequence of the difficulty. Thus the conditions of labour, and the facts, positive and negative, of the child's birth, alike suggest that the symptoms we are about to consider are the result of brain injury during birth. The condition of the brain that is found in later life in these cases is an atrophy of the convolutions in the central region, in which the "motor centres" are situated. There is a depression of the cortex in this region, affecting often the same parts in the two hemispheres; it is generally greatest near the middle line, and becomes less towards the lower and outer part of the convexity. In this depression the convolutions are small and indurated, often less than half the normal size. In children who have died soon after a difficult birth, and who suffered from convulsions during the few days they lived, there is found an extravasation of blood on the surface of the brain—meningeal hemorrhage. The layer of blood is usually thickest over the region in which the depression is found in the later cases; and although it may extend over a wide region of the brain, it is the central region that is most compressed. Sometimes the cortical tissue is actually lacerated in this part. No doubt, in time the blood becomes absorbed, but the time required is so long that the compressed convolutions undergo tissue changes and remain in the atrophied condition in which they are found in later life. The blood, however, is not always extravasated over the convexity of the brain. In some cases it is found at the base, beneath the tentorium, around the pons and medulla.

and cerebellum; the cerebellum is, indeed, then usually lacerated, and the blood comes apparently from the cerebellar vessels. Dr. McNutt found that when the presentation was natural the extravasation was chiefly at the base, and that when the head was born last the blood was chiefly over the convexity, but her cases are too few to permit us to say whether this is a general rule. From clinical facts, it seems probable that the hemorrhage is often over the convexity in head presentations, as well as in unnatural labours; at least, the persistent symptoms, in most cases in which the head presented, are most readily explicable on the assumption of cortical damage. We cannot yet trace any difference in the effects corresponding to the two classes of labour. We do not know, therefore, what persistent symptoms are to be ascribed to the damage to the base and to the cerebellum. I have, however, seen a few instances in which hydrocephalus slowly developed after a difficult birth, and it seemed probable that extravasation about the medulla may have led to the occlusion of the foramina by which the fluid escapes from the ventricles.

A child that is born with difficulty, or else the head is born last, has to endure not merely the compression inevitable to the process, but also a considerable degree of mechanical and asphyxial congestion. Often there is a conspicuous "blood tumour" of the scalp; sometimes there is an indentation of the skull, or other sign of injury. Often the child is apparently dead, and may only give signs of life after efforts to revive it have been continued for some time. There may be general convulsions or general rigidity for some days after birth, but these occur only in a minority of the cases that recover, because most children do not live who have endured sufficient injury to give rise to these symptoms. In some children distinct immobility of the limbs is noted during the early weeks of life; sometimes the limbs of one side are motionless, and those of the other side are moved; occasionally a special stiffness of the legs attracts attention almost from the first. In slighter instances, however, no special defect may be noted during early infancy, and it is only when the child should begin to walk and talk that the absence of these signs of normal progress arouses a suspicion that something is wrong, and leads to a closer examination of the limbs. At this age, in mild cases, the legs are found to be frequently rigid from spasm; sometimes they are flexed, sometimes extended, and often they are strongly adducted. There is usually spasm also in the arms, but it is of a different type, and causes incoördination and spontaneous movements, which are generally slow, like the athetoid movements that so often succeed acquired hemiplegia in children, but are sometimes quick and very like the movements of chorea. Voluntary actions are interfered with by the spasm, and coördination is conspicuously deranged. If the child tries to grasp an object, the fingers spread out irregularly,

and only after some time close upon it in a spasmodic manner and the grasp often cannot be relaxed when desired. Sometimes there is a spasmodic flexion or extension of the elbow, and frequently the arm is at times strongly adducted.

Another symptom is not uncommon during infancy—a conspicuous difficulty in supporting the head, which tends to fall forwards or backwards or to one side. Rarely there is at first some retraction of the head. In many cases the muscles of the trunk are weakened, especially the muscles of the back. It is long before the child is able to sit up, and some slight curvature of the spine may develop in consequence of the inequality of the support afforded by the muscles and the habitual posture in consequence assumed. There is not often any abnormal condition of the face, but occasionally there is a difficulty in swallowing and even in articulation. Strabismus, external or internal, is present in many cases, the latter being the more frequent. It does not depend on any definite palsy. Mental defect exists in more than half the cases; sometimes it is so considerable as to amount to actual idiocy, and a child of seven or eight may be unable to speak, and be unclean in habit. A slighter defect of intelligence is more common—enough to render the acquisition of speech later than usual, and often to impress on the articulation some peculiarity which is erroneously ascribed to a local defect. It is often difficult to say whether defect of speech is due to insufficient motor innervation or to the mental state.

In the majority of cases the symptoms are thus bilateral and general in their distribution, although some parts may be more affected than others. But the disorder is not rarely limited. The limbs of one side may be affected in the characteristic manner, while those of the other side appear normal. The leg is then seldom severely affected, and the chief derangement is of the movement of the arm. Much more common than limitation to one side is the comparative escape of the arms. The legs present a condition of spastic paraplegia quite similar in its features to that which results from a primary disease of the spinal cord, except that there is a greater amount of adductor spasm, and consequently a tendency to cross-legged progression, which is seldom seen in purely spinal affections. In many of these cases, however, a slight disorder of movement in the hands may be found if it is carefully looked for, or, if the case is seen after the first years of life, a history of previous awkwardness may be ascertained.

Recurring convulsions are a prominent symptom of some cases of birth palsy, but are not so common as we might expect from the frequency with which such fits follow the hemiplegia that comes on in late infancy and childhood. In some instances convulsions occur during the middle or second half of the first year of life. They may cease after lasting a few months, or may continue and

become established as a form of epilepsy. The fits in later infancy may be general, but those that persist are almost always onesided; they occur in cases in which the limbs are unequally affected, and the convulsion involves the side in which the movement is most disordered. I have seen one case in which such left-sided fits were preceded by a visual aura.

The symptoms I have described are those that result from considerable damage to the brain. But we may reasonably suspect that for one case in which such severe effects result from serious injury there are many cases in which a slighter lesion has more trifling consequences. It has been long believed that many cases of pure mental defect are due to this cause. We sometimes meet with children who suffer from epilepsy, whose birth was difficult, and in whom we can trace no cause of convulsions, either in hereditary disposition or in the incidents of their life, to which the malady can be ascribed. It is possible that in some of these the convulsive tendency may be due to slight injury to the cortex.

The diagnosis of this malady seldom presents much difficulty. If the character of the symptoms and their cause is known, the affection is readily recognised. The most important distinctions from other cerebral diseases are that there is no history of a definite onset at any time after birth, and that the condition is not progressive. Bilateral weakness with spasm may result from a tumour of the pons, but the two criteria just mentioned will always suffice for the distinction of this disease from birth palsy. If the injury to the brain is chiefly one-sided, the resulting symptoms may resemble those of the "acquired" hemiplegia that occasionally results from a sudden lesion during infancy. But such a lesion has been attended with acute symptoms at the time of the onset, and of these there generally is a clear history. Moreover, birth palsy is scarcely ever strictly unilateral; one side may be much more affected than the other; but limbs that seem to be normal present slight disturbance of the same kind as that which is marked on the other side. A greater difficulty is presented by the case in which the legs suffer much more than the arms, and in which the spastic paralysis of the legs resembles very closely that which is produced by disease of the spinal cord. Here also, however, there will be found traces of the disorder in the parts that appear at first sight to be free. The movements of the hands are distinctly awkward, and differ from those of a healthy child, although the parents often have not recognised the abnormality. Chronic disease of the spinal cord is almost unknown in early childhood. Most cases of paraplegia of chronic onset in children are due to caries of the spine, and I do not remember to have seen, in a young child, a single instance of primary chronic lesion of the cord itself, such as so often causes, in the adult, a condition of the legs similar to that seen in these cases of "congenital paraplegia."

When the weakness of the legs is slight, so that the child is able to walk, but in an awkward manner, the condition is occasionally mistaken for pseudo-hypertrophic paralysis. The error is rendered easier by the facts that the muscles are often large and firm, that there is some contracture of the calf muscles, and that the child learned to walk later than children commonly do. Thus the superficial resemblance between the two diseases is extensive; but so likewise is their difference. The contracture in the calf muscles can be overcome in the birth palsy, for it depends on active muscular contraction. In the pseudo-hypertrophic disease it is a fixed structural shortening which cannot be overcome. Moreover, there is no trace of the characteristic condition of the muscles about the shoulder almost invariable in pseudo-hypertrophic paralysis—the large infra-spinatus and the defective pectoralis and latissimus dorsi; nor is there the equally common lordosis. Lastly, there is one test which alone decides the question—the state of reflex action in the legs. In birth palsy the knee jerk is excessive, and a cutaneous stimulus excites reflex spasm. In the muscular disease the knee jerk is never increased; it may be normal, but it is often diminished or lost, and you cannot, by any peripheral impression, produce the extensor spasm so characteristic of birth palsy.

The prognosis in a severe case is never really good; but, on the other hand, it is seldom altogether bad. The malady is not one of a progressive character; it does not go on, as the saying is, "from bad to worse." Its tendency is always to a slow improvement, and we may therefore confidently assure the friends that the symptoms will lessen gradually as time goes on. The improvement is very slow during the first half of childhood. The use of the limbs is impaired less by loss of power than by the spasm and incoördination, and the chief improvement occurs when the child can bring deliberate intention to aid the process of muscular training—which constitutes the most important means of amelioration. Hence considerable mental impairment not only renders the general prognosis more grave, but also lessens the prospect of considerable motor improvement. In almost all cases in which there is not actual idiocy the power of standing or walking is ultimately acquired, although at a period much later than in healthy children, and late in proportion to the severity of the symptoms. Usually also in severe cases the gait presents some enduring peculiarity, sometimes slight and unimportant, sometimes distressingly obtrusive. I suspect that most of the unfortunate creatures whom we sometimes see in the streets, walking along with an unsteady, oscillating gait, and strange consensual motions of the trunk and arms, are really the subjects of this disorder. The hands also become steadier in time, and the amount of disorder in their movement that ultimately remains may interfere less with their use than might be imagined. The prognosis regarding the mental state

must be guided by the amount of defect that can be recognised. Mental deficiency is not necessarily allied to the muscular disorder, nor, when it exists, is there any necessary proportion between the two. We can give no opinion until the second year of life is passed, because it is not till then that the existence of slight defect can be recognised with certainty, or the degree of considerable defect can be assessed. In all cases the development of the mental powers will be later than in other children.

It follows, of necessity, from the nature of these cases, that the morbid state is beyond the scope of remedial treatment. Drugs are therefore useless, except to combat some of the effects of the disease. If there is a tendency to convulsions, we may lessen that tendency by the means that we should employ in any other case of epilepsy. Remember that it is important to detect that tendency in its early stage. Such patients sometimes suffer from slight attacks of epileptic nature, brief loss of consciousness, or brief spasm, which, in the course of time, will increase to general convulsions unless they are stopped. But the chief treatment must be directed to the training of the motor power by such means as rhythmical gymnastic exercises. These certainly facilitate the ordered use of the limbs; but to employ the means effectually we must usually wait until later childhood, when more definite power of will can be brought to bear upon the process. After the ability of standing and walking has been acquired the progress of the child is more rapid, and this ability can sometimes be secured by the aid of instrumental support sooner than it would be without such assistance. It is especially when there is spasmodic inversion and extension of the feet, or flexion of the knees, that duly adapted apparatus is useful. Sometimes it is more than useful, it is even essential, in order to prevent the deformity and displacement of the bones, that would result if the child were allowed to stand upon inverted feet. But it is useless to have recourse to instruments until there is such control over the limbs that the apparatus enables the child to stand.

Another question sometimes presents itself, When there is considerable talipes equinus, should the tendon be divided? The operation is never justified in these cases. There is no permanent shortening of the muscle; there is an active contraction, and for this the division of the tendon can do no permanent good. Another question that is often asked is whether electricity would be of any service. To that also the answer must be in the negative. Faradaism would not be thought of in such a case; and I am satisfied from my own observation that voltaism has no real influence over the disorder of movement. Of course, if a child is treated with electricity during six or twelve months, some improvement may be discerned; but the improvement is due to the lapse of time, and not to the applications that have been made. Gentle

rubbing of the muscles, especially upward rubbing, lessens for the time the degree of spasm, and such a procedure, often repeated, seems sometimes to have a permanently beneficial influence. In no case can it do harm; and as it can be performed with perfect efficiency by the nurse or mother, it is well to recommend it, especially as it may be employed before other measures are practicable.—*Lancet, April* 14 *and* 21, 1888, *pp.* 709, 759.

14.—ON ALCOHOLIC PARALYSIS.

By C. W. Suckling, M.D., M.R.C.P., Physician to the Queen's Hospital, Birmingham.

[After brief reference to the writings of Jackson, Magnus Huss, Wilks, Dreschfeld, and others, Dr. Suckling proceeds with his clinical description of the malady as follows:]

Alcoholic paralysis proper is met with in women far oftener than in men. The disease usually commences and progresses gradually, being subacute in its intensity, but the onset is occasionally acute, and attended with fever. Sensory disturbances are well marked, there being hyperæsthesia of the feet and legs, which, in severe cases, may be followed by anæsthesia and analgesia. The patient usually complains bitterly of "cramps" in the calf muscles and of lancinating pains. These sensory disorders are usually most marked in the lower extremities, but frequently affect the upper limbs also. The calf-muscles are exquisitely tender when grasped, and this symptom is highly characteristic of the disease. Tenderness is, also, usually elicited by pressure applied along the course of the nerves of the lower extremities.

A remarkable perversion of the sense of temperature has been observed in the subjects of alcoholic paralysis, all objects in contact with the skin appearing cold; I have not observed this in the cases I have met with. The patient complains of weakness, or may be of absolute paralysis in the feet and legs, sometimes she is able to get about with a shuffling gait, being unable to pick her toes up properly, and, therefore, constantly tripping; in more advanced cases the patient lies in bed helpless, being unable to move her feet, but having still some slight power in the hands. The extensor muscles of the legs suffer earliest and to the greatest extent, the feet being drooped and flaccid, all power of dorsal flexion of the feet being usually lost. The knee-jerk is almost invariably, and the plantar reflex frequently, abolished.

The arms are affected later than the legs, and to a much less degree; the extensor muscles here also suffering most, dropped wrist (see illustration) being occasionally, though by no means always, present.

The paralysis, though usually affecting only the extremities, and always commencing and being most severe in these parts,

may, however, be general; and even when extensor paralysis alone is evident, careful examination shows that there is general muscular enfeeblement.

The cranial nerves are sometimes affected; in one of my cases the presence of squint together with vomiting led to the diagnosis of cerebral tumor.

Buzzard has met with paralysis of the soft palate, of the face, and also of the external rectus oculi; and Hadden has noticed nystagmus in alcoholic paralysis.

In one of my cases ophthalmoplegia externa was present, together with double optic neuritis. The common causes of ophthalmoplegia externa are locomotor ataxia, syphilis, diphtheria, and exposure to cold. Though paralysis of the ocular muscles has been observed in chronic alcoholism, I am not aware that the condition to which the term ophthalmoplegia externa is applied has been met with, and its occurrence would seem to show that it may be produced by lesion of the nerves as well as by lesion of the nerve nuclei, alcoholic paralysis having been proved to depend upon peripheral neuritis.

Alcoholic paralysis.

The paralysed parts are always flaccid and atrophied, the degree of atrophy varying with the intensity of the neuritis. Contracture may occur, but is rare. The bladder and the rectum are rarely implicated. The faradic irritability in mild cases may be present in a normal degree, but is usually diminished, and in severe cases is entirely abolished. The galvanic irritability is increased, and the contractions sluggish and prolonged, the reaction of degeneration being well marked in severe cases.

Vasomotor changes are usually present, the extremities being red and sometimes œdematous, and occasionally presenting purpuric spots, but these changes and also trophic disturbances are always more marked in the lower than in the upper extremities. Bedsores do not occur except in the worst cases.

The skin of the hands and feet sometimes presents the glossy appearance first described by Paget; at other times it is harsh

and dry. The nails are frequently affected, being curved, ridged, opaque, and brittle.

Mental symptoms are almost invariably present; the memory is impaired especially for recent events; the patient is emotional, suffers from insomnia, dreams, restlessness, delirium, and hebetude, together with digestive disturbances, such as morning sickness and retching. Such symptoms occurring with ataxy or paralysis render the diagnosis of the nature of these two symptoms tolerably certain.

I have elsewhere corroborated an observation of Dr. Dreschfeld's, of a peculiar form of delirium present in the subjects of alcoholic paralysis. Dr. Dreschfeld noticed that the subjects of this disease, though unable to move, would say that they had been out walking, often an impossible distance. Since writing on this delusion, I have had abundant evidence of the truth of his observation.

The diagnosis is usually an easy one. The patient complains of pains and loss of power in her legs, the feet are drooped and flaccid, and she cannot point her toes upward. The power of dorsal flexion of the feet is diminished or absent. The grasp is feeble, but there is often no marked paralysis in the upper extremities.

Great pain is elicited if the calf muscles are grasped, and tenderness is present along the course of the nerve trunks, the patient complaining bitterly of cramps in the calf muscles.

It will be found that the knee-jerk is absent, and this is a most important symptom, as tabes is rare in women. Mental disturbance is always more or less present, there being usually considerable loss of memory, and the peculiar delusions already mentioned. The presence of sickness or retching in the morning is highly suggestive of the disease.

It must be remembered that in many cases no history of alcoholic excess is obtainable unless the medical man, from being sure of his diagnosis, insists on its alcoholic nature, so that the diagnosis at first must be made from the physical and mental state of the patient, the diagnosis required being first that the case is one of multiple peripheral neuritis, and then that the cause of this neuritis is alcoholic excess.

In well-marked cases the diagnosis of peripheral neuritis is very easy, the sensory disturbances and electrical changes showing that the lesion is one of the peripheral nerves, but in mild cases sensory alterations may not occur at all, for in neuritis of a mixed nerve the motor fibres always suffer most; frequently, also, the nerves are affected beyond the points at which their sensory branches are given off, and thus motor symptoms alone are present, though the nerve is a mixed one.

The absence of the knee-jerk alone is quite sufficient to prove

that the paralysis is not hysterical—the knee-jerk is never absent in simple hysteria, and its absence denotes a lesion somewhere in the reflex path which traverses the cord at the level of the second and third lumbar nerves.

In cerebral paralysis there are no electrical changes, sensation is usually unaffected, rigidity and not flaccidity is present with exaggeration, and not abolition of the tendon reflexes, muscular wasting is not marked, nor are trophic changes usually present.

Should a squint be present in a case of alcoholic paralysis, it is possible that the vomiting and delirium might lead to the diagnosis of cerebral tumour or other brain lesion as the cause of the paraplegia. But this mistake is a bad one, and the patient would in all probability be sacrificed through it, for she would be allowed to go on taking stimulants until she died.

The prognosis in alcoholic paralysis is usually favourable, if the nature of the disease is detected early, and its cause removed; should the patient still continue to obtain alcohol, the case will end fatally, either from bedsores or from some associated diseases, phthisis, or cirrhosis of the liver, or by the production of the typhoid state. Gowers has observed death from rapid cardiac failure in two cases. Complete recovery may ensue after the disease has continued for a year.

It is only by the use of electricity that we can make an accurate prognosis of the duration of the paralysis in a given case. If the faradic response be lost, and the reaction of degeneration be present, then the paralysis is severe, and several months must elapse before recovery can ensue. The gravity is increased should the galvanic muscular irritability be greatly diminished, and should there be no irritability at all, then recovery cannot take place. Of course, these remarks apply only to the degree of neuritis present. The general condition of the patient must be taken into account in giving an opinion as to the patient's chance of recovery. The presence of jaundice, fever, delirium, phthisis, or cirrhosis of the liver renders the prognosis more grave. The time in which recovery may ensue must always be reckoned in months. Twelve months frequently pass before recovery is complete.

In all cases it must be remembered that no improvement can take place unless the patient be prevented from obtaining drink, and all such patients should be watched, and deception must be expected and looked for. Rest in bed is necessary, and after acute symptoms have subsided galvanisation of the affected nerves and muscles is useful. If there is much pain, hot fomentations and anodyne liniments are very useful. Cocaine may be applied locally or injected hypodermatically. Opium must be given with great care. Rubbing is of great value, particular attention being given to the extensor muscles of the toes, and by this means contracture of the calf-muscles is prevented, and recovery hastened.

Internally, iodide of potassium, with strychnia and iron, has seemed to do good in my cases. I consider strychnia a most valuable remedy in chronic alcoholism. The application of blisters and counter-irritants along the course of the nerve-trunks is also useful, but, of course, interferes with the rubbing, which I believe to be the most useful of all modes of treatment in this complaint. It is difficult to estimate the value of drugs in this disease, for probably the mere withdrawal of alcohol is quite sufficient for the cure of most cases.—*American Journal of Med. Science, June, p.* 567.

15.—ON RHEUMATIC PERIPHERAL NEURITIS.

By Judson S. Bury, M.D., M.R.C.P., Assistant Physician to the Clinical Hospital, Manchester.

[Dr. Bury's paper, of which we can reproduce here only that part which sets forth the summing up of his observations, undoubtedly forms one of the most valuable of recent contributions to the clinical relations of peripheral neuritis. Examples are given from the author's own records, and also from the observations of Dr. Dreschfeld, Dr. Simpson, Sir William Roberts, Dr. Thomas Barlow, and other writers, of the following varieties of peripheral dystrophies and palsies occurring in the rheumatic and related conditions. (1) Cases of acute rheumatism, generally with endocarditis or pericarditis, more or less immediately followed by tenderness and swelling of certain nerves, wasting and weakness of muscles, chiefly in the hand, but sometimes in the foot and leg, fibrillary tremors, paralytic attitudes, and varying disturbances of cutaneous sensation. (2) A group of cases in which there is, in addition to the manifestations of the first class of cases, evidence of pressure on or irritation of the roots of some of the spinal nerves. (3) A group of cases of great interest, suggesting that a general progressive muscular atrophy occasionally starts from an attack of acute rheumatism (Sir William Roberts on "Wasting Palsy"). (4) A group in which, in addition to other and commoner manifestations, hypertrophy of the ends of some of the long bones was noticed. (5) A group of cases of chorea in which local palsies and atrophies of muscles occurred. Dr. Bury states his conclusions as follows:]

1. That in articular rheumatism we constantly meet with the muscular atrophy and paresis common to other joint affections, and that while the sudden onset of these symptoms appears to be best explained by a reflex mechanism, whereby irritation conveyed along sensory nerves from the joint to the cord inhibits in some way the functional activity of the motor cells in the anterior horns, the progressive character and duration of the atrophy suggest organic changes either central or peripheral. The presence also of increased tendon reactions, sometimes of contractures, and

the fact that very rarely a lateral sclerosis may start from an arthritic attack, indicate that we may have changes not only in the motor cells but also probably in the terminations of the pyramidal tract or in that network of nerve fibrillæ by which they are supposed to be connected with the ganglionic cells, changes possibly not detectable by the microscope, yet, in all probability, more than functional.

2. That one of the plainest and commonest phenomena of acute, subacute, or chronic rheumatism is wasting of the interosseous muscles of the hand; and that while some cases may be explained in the same way as other arthritic atrophies, viz., reflexly from inflamed knuckles, there is sufficient evidence that in a large number of cases the atrophy is due to an ulnar neuritis. Thus, in ulnar paralysis the index and middle fingers are less affected than the two inner fingers, because the outer two humbricales are supplied by the median. Now this is usually, though not invariably, the case in the rheumatic hand, where the little and ring fingers show over-extension of the first phalanges and flexion of the others. In rheumatism, too, there appears to be a special incidence on the adductor pollicis and the abductor indicis. Confirmatory evidence of neuritis is afforded by the frequency with which impaired cutaneous sensibility is met with in the ulnar nerve territory, along with thickening and tenderness over the trunk of the nerve itself.

3. That although the ulnar is by far the commonest nerve to be affected, there is substantial proof that other nerves of the brachial plexus and that branches of the lumbar and sacral plexuses ear also frequently attacked.

4. It is of great significance to note that these peripheral nerve symptoms may occur in a limb *quite free from joint irritation*, as, e.g., during early convalescence from rheumatic fever. And if we thus often meet with paralysis, atrophy, or anæsthesia in the course of the ulnar nerve during an attack of rheumatism, or immediately after the pyrexia has subsided, in a limb whose joints are free, it appears to me that we have justifiable if not conclusive grounds for believing not only in a neuritis, but in one set up by the rheumatic poison. And when we read that Pitres and Vaillard, the more they examine cases of phthisis, tabes, and typhoid, the more constantly do they find evidence of neuritis in regions where, during life, symptoms of such neuritis were but slight, it is scarcely fanciful to admit the likelihood of a latent neuritis in rheumatism affecting a large number of nerves, and so accounting for much general muscular wasting.

Having referred these phenomena to the peripheral nerves, I must leave them, for it does not come within my province to discuss how far these and other instances of peripheral neuritis may have a central origin; yet, with regard to this question, I may

fitly conclude my paper by quoting words uttered by Graves, of Dublin, nearly forty years before the days of peripheral neuritis.

In his introductory remarks to "Diseases of the Nervous System," he says: "In considering the symptoms that accompany diseases of the nerves, pathologists have directed their attention almost exclusively to the nervous centres, and have looked on the brain, cerebellum, and spinal cord as the parts in which the causes of all nervous disorders reside, or in which they originate, forgetting that these causes may be also resident in the nervous cords themselves, or their extremities. In fact pathologists have, with respect to the diseases of the nervous system, continued an error precisely similar to that which was so long prevalent with regard to diseases of the vascular system; for it is only lately that they have recognised the important truth that diseased vascular action may commence in the circumference." "And may not," he says in another passage, "the decay and withering of the nervous tree commence occasionally in its extreme branches? And may not a blighting influence affect the latter, while the main trunk remains sound and unharmed?"—*Medical Chronicle, June, p.* 198.

16.—ON HEREDITARY ANGIO-NEUROTIC ŒDEMA.

By William Osler, M.D., Professor of Clinical Medicine in the University of Pennsylvania.

Under the terms *acute local, acute circumscribed,* or *angio-neurotic* œdema, a disease has been described, characterised by the sudden onset in various regions of œdematous swellings, more or less limited in extent, and of transient duration. Although not referred to at any length in text-books or cyclopædias, the affection is evidently not very uncommon, as Dinkelaker, a pupil of Quincke, has collected a number of cases from the literature. In three instances the disease appeared in succeeding generations, and it is this hereditary aspect which gives special interest to the following report. Briefly summarised, the affection in the family which I have studied has the following characteristics:

1. The occurrence of local swellings in various parts of the body, face, hands, arms, legs, genitals, buttocks, and throat. In one instance, possibly in two, death resulted from a sudden *œdema glottidis.*

2. Associated with the œdema, there is almost invariably gastro-intestinal disturbance: colic, nausea, vomiting, and sometimes diarrhœa.

3. A strongly marked hereditary disposition, the disease having affected members of the family in five generations.

A member of the family, Mrs. H., aged twenty-four years, was admitted to the Infirmary for Nervous Diseases, September 20th, 1887, and the following notes were taken by Dr. Burr, the house

physician :—Medium-sized, well-nourished brunette, admitted with neurasthenic symptoms. Has been married two years, no children. Has had good deal of back pain and menstruation is irregular and painful; was healthy as a child, and as a young woman. As long as she can remember, she has been subject to attacks of transient swelling in various parts—hands or fingers, knee-caps, elbows, buttocks, arm or thigh in fleshy parts, face, or more often the lips alone. The fingers have been so swollen that it was impossible to move them, and once the ring-finger was so greatly enlarged that the ring had to be filed off to prevent gangrene. The underlip has been swollen to such a degree that the mouth could not be opened, and milk had to be poured in from above. A slight redness and itching of the part is first noticed, or a sensation of heat; the redness is not always present. The effusion may take place with great rapidity. She often has red spots on various parts of the skin, or irregular lines of redness without any swelling. The duration varies from one to four days. There is not much itching, particularly when the swelling is great, but a sense of distension and stiffness. When fully *out* it does not pit, but does so when going down. The attacks may come on when she is feeling quite well or there may be slight indisposition. In all the severer ones there is abdominal pain, described as colic, with nausea, and often vomiting. There is sometimes headache; no fever. The attacks have no relation to the menstrual flow. She rarely passes two weeks without an attack. She does not think that food has any influence on her case. She remained in the hospital three weeks, during which time there was no severe attack, but she had numerous wheal-like eruptions on the chest and sides of the thighs, with very slight swelling, and the day before she left there was a large spot of local œdema on the inner aspect of the left thigh. Dr. Morton dilated a very narrow cervix, and she went home much improved. She had not passed three weeks without a severe attack for a long time. I saw her again on January 16th. She had four or five bad attacks on the hands, feet, and thighs, since leaving the hospital.

The general characters of the œdema may be gathered from the description given of the case of Mrs. H. A review of the literature shows that all of the cases in this respect are very similar. In some, the swelling is more constant in one locality, as eyelid or lip; but, as a rule, various parts are affected. The hands, face, and genitals are most frequently attacked. Itching, heat, and redness, often precede the outbreak. In many cases the patient also had urticaria.

A special interest pertains to the occurrence of œdema about the throat and larynx, as sudden and extreme involvement of these parts may prove fatal. In Case 1 of Quincke and Dinkelaker, the patient, a man aged twenty-two, had repeated attacks of suffoca-

tion, often with cyanosis, in association with local œdema about the joints, and colicky pains. The mucous membrane of the larynx was greatly swollen, and scarification had to be performed. There was no difficulty in swallowing.

In a case of Goltz, male, aged thirty, there was œdema of the uvula and pharynx, in association with swelling of sides of arms and scrotum. Laudon had in his own case swelling of the pharynx. Cuntz describes a case in which the patient awoke one night with great dyspnœa and a sense of suffocation, which passed off in a few hours.

In one of Riehl's cases the patient had three attacks of angina, with difficulty of swallowing, and great breathlessness. In his second case also, the man is said to have had inflammation of the vocal cords, which had produced symptoms of suffocation.

In several of the cases there was a remarkable regularity in the sequence of the attacks which recurred on the seventh, fourteenth, or twelfth day. In Matas's case, this periodicity was very striking, the attack coming on every day at 11 or 12 a.m.

The hereditary aspect of the disease, which is so well illustrated in the family which I have studied, has been noticed by three observers. In Quincke's first case the man had two children, one of whom, the son, aged one year, had had, from the age of three months, attacks of local œdema, often preceded by a red and marbled condition of the skin of the breast.

One of Strübing's cases, a man, aged seventy, had a son who suffered with the attacks of œdema.

In Falcone's case, a lad of seven years, with well-marked attacks, the father had not been affected, but the grandfather had been afflicted in the same way.

The intestinal trouble, which forms so striking a feature of the attack, is of the nature of colic, and is really the most distressing symptom, usually requiring morphia for its relief. It is interesting to note that there is a disease in children characterised by painful œdomatous swellings about the joints, a purpuric or urticarial eruption, and most intense colic. There may be hemorrhage from the bowels, but the skin affection and the colic are the prominent features. The attacks may be repeated at intervals for many months. Couty has given the only full account of the disease. Henoch has also reported four cases. I have recently had an opportunity of seeing a typical case of the kind with Dr. Dunton, of Germantown. A boy aged six, has had, during the past ten weeks, three attacks, each one extending over many days, of purpura, with urticaria, swellings about the ancles, and intolerable colic. He has also passed blood in the stools, and the urine contains blood, albumen, and tube casts.

So far as I can gather, none of the members of the preceding generations of my patient's family has had purpura, nor have there

been *painful* swelling of the joints. Some of them have had urticaria and Mrs. H., while in the Infirmary, had very characteristic wheals on the chest and thighs.

The colic is, in all probability, due to œdema of local regions of the intestinal wall interfering with the regular and uniform progress of peristalsis. The colic of horses is, in most cases, the result of hemorrhagic œdema—infarction—of a limited portion of the intestine, due to embolism in association with the common verminous aneurisms of the mesenteric arteries.

Quincke has termed this condition *angio-neurotic œdema*, and regards it as a vasomotor neurosis, under the influence of which the permeability of the vessels is suddenly increased. That it has close relationship with urticaria, a skin disease of unquestioned neurotic origin, is shown by the frequency with which in the reported cases we find mention of the affection preceding or accompanying the local œdema. The condition resembles in some points urticaria tuberosa, and Juler, in a very able article, describes a case of u. porcellana which evidently belongs to the affection under discussion. In our present state of ignorance of the factors which regulate transudation, it seems useless to enter upon a theoretical discussion on the subject of nervous œdema, and we may conclude with Cohnheim, "that we have to do here with clinical facts and observations which urgently call for scientific solution, and that we possess at present but extremely scanty material for an adequate explanation regarding neurotic œdema." —*American Journal of Medical Science, April* 1888, *p.* 362.

17.—ON EPILEPSY AND MIGRAINE.

By Samuel Wilks, M.D., F.R.S., Physician to Guy's Hospital.

Judging from what I hear and read, antipyrin has been as great a failure in the relief of epilepsy as it has been a success in migraine. I have now used this drug for nearly two years, and having seen its remarkable power in arresting attacks of headache, I can fully corroborate the high opinion held by the profession generally as to its merits. It has, however, by no means superseded other well-known remedies in their more enduring effect in the cure of this disease. As regards the power of antipyrin in epilepsy the result is very different, as not unexpected by me, who never have been able to discern the analogy between the two diseases, and which suggested the trial of the same remedy for both. This is no new opinion of mine, but if not hitherto expressed it has been out of deference to the great names of those who, in their writings, have associated the two diseases together. I have never myself seen the resemblance, but, on the other hand, have observed many and considerable dissimilarities. The only plausible reason for linking them together is their paroxysmal character;

that is, persons who may be well to-day may have a fit or attack of migraine to-morrow, but the very difference in the nature of the paroxysm seems to me sufficient to dissociate them. In the one case, the patient may be as well as ever one moment, and the next moment may have fallen unconsciously down without there having been any warning of the occurrence; whereas, in the other case, the attack is approaching for hours, and very often some well-known cause has developed it. Nay, further, a migrainous person may, in the performance of some duty, predict an attack with certainty; he may, indeed, induce it. Then as regards the symptoms, there is nothing in common between them. The attacks are not only altogether unlike, but the epileptic, as a rule, is not a sufferer from headache, nor does the migraine patient become epileptic. Some years ago I took the trouble to ask the question of epileptics, and the almost invariable answer was that they did not suffer from headache. This is a very important and practical point, for if headache was present, it proved the case to be one not of simple epilepsy, but of fits due to injury, syphilis, or other cerebral disease, and which was often cured by the iodides and mercury when the bromides had failed. Then, on the other hand, I have no history of a migrainous patient becoming an epileptic. The former, as a rule, loses his trouble as years wear on, whilst the latter often becomes more confirmed in his complaint, or his brain altogether gives way. Amongst a large number of cases, I only remember one where there was a suspicion of the two maladies existing together. In answer to what I have stated, it would be maintained by those who regard the two affections as allied, that they admit the difference between the phenomena of migraine and epilepsy, but, nevertheless, they have a common pathology. This remarkable theory seems scarcely warranted by our ordinary mode of reasoning about cause and effect. The only plausible reason for such an opinion ought to be founded on the observation that the migrainous patient often becomes epileptic, or the reverse; but, as I have already stated, this is not true. It might also be maintained that the two affections are seen occurring in members of the same family. Now this, from a very long experience, I also deny. I know many families subject to migraine, but in none is there a single member epileptic. And more than this; the opposite fact is true, that the two diseases attach themselves to a totally different class of persons. The migrainous patient frequently belongs to the most cultivated and intellectual class of society, and is of the temperament called neurasthenic, whilst the epileptic, in my experience, belongs to a lower grade, and is generally the stupid one of the family; if, indeed, his fits are not associated with other grave defects of his nervous system. There is no lunatic or idiot asylum without its numerous epileptics, whereas some of the best descriptions of mi-

graine are to be found in the Philosophical Transactions, given by the authors themselves. There may be, before an attack either of epilepsy or migraine, some altered mental condition; but, if so, in the former it is of the nature, first, of mania and then of stupor, whilst in the latter the mind is often more acute both preceding and during the attack. I will not go so far as to absolutely endorse an opinion expressed by more than one observant medical man, that migraine is never met with amongst the lower orders, although it is difficult to conceive how such services as those of policemen or engine-drivers could go on were it at all common amongst the working community. A man or woman in a higher grade of society can afford to lose a day now and then without interfering seriously with their vocations. Moreover, there seems no good reason why the two diseases should be thought to have the same seat: in epilepsy it is proved that the brain is the seat of the explosion which causes the phenomena, whilst this is by no means certain in the case of migraine. Here the patient is bodily ill, his pupils are contracted, and thus unlike the dilatation of epilepsy; his stomach and bowels are deranged; his heart's action is depressed; he is cold and shivering, and apparently his whole ganglionic system is at fault. In a word, I see no resemblance between an attack of migraine and epilepsy. I observe they never pass the one into the other, they do not occur in the same families or in the same class of persons, and the remedies which relieve the two diseases are different.—*Lancet*, *Aug.* 11, 1888, *p.* 263.

18.—ON THE RELIEF OF MIGRAINOUS HEADACHE.

By James Little, M.D., President of the King and Queen's College of Physicians in Ireland.

Though the typical form of migraine—consisting of the visual disturbance, hemicrania, and nausea—is not a very common affection, we frequently meet with persons suffering from headaches, which seriously interfere with the occupations and comfort of life, and which appear to me to be of the same nature as the special neuralgia to which the term migraine is applied. These headaches occur at various intervals, sometimes only three or four times in the year, sometimes two or three times in a week. It is usually described as a dull disabling headache, and is first felt on awaking, or immediately after getting up. Generally those who suffer from it say that they go to bed the previous night feeling particularly well, but occasionally they have a warning of the approach of the attack on the previous afternoon. Sometimes the headache goes away after breakfast, but far more frequently the sufferer is unable to take breakfast, or finds that whether he can take it or not the headache increases. During the day he has distressing fits of retching, but usually is able to sleep when night comes, and the

following morning he awakes merely weak. In a certain proportion of cases the headache is at first limited to one brow; and in these the invalid is less fortunate, for he generally finds that on awaking on the second day the pain has not gone, but has merely crossed over to the previously unaffected side of the head. The diagnosis of the nature of these attacks is very important. Those who suffer from them generally regard them as due to derangement of the digestive organs, and some of their advisers take the same view, and endeavour to avert the attacks by rigid care in diet, and by medicines which act on the liver and digestive organs. Such measures are, I think, very seldom of advantage, not infrequently rather the reverse; and in speaking of these headaches as being allied to migraine, I mean to convey the idea that they are really neuralgic, and are to be postponed and relieved when they come by treatment directed to the nervous system.

Of the means which are useful in lessening the frequency of these headaches, the most efficacious are, I think, abundant exercise in the open air, a nourishing diet, sponging with hot water in the morning, followed by the cold douche over the shoulders and spine, and a very sparing use of tea; and among drugs the combination which has appeared to me to do most good is a pill containg one-twelfth of a grain of arseniate of sodium, one-sixth of a grain of extract of Indian hemp, one-third of a grain of extract of belladonna, and two grains of valerianate of zinc, taken after breakfast and dinner.

Up to October, 1885, I did not know of any treatment which had any distinct power of cutting short the attack when it came, or even mitigating its severity. Most patients found that if they refrained entirely from any attempt to take food, and were able to lie in a darkened room, they did all which was possible to lessen the intensity of their sufferings. Those who had on the previous evening a warning of their impending attack sometimes thought they kept it off by a full dose of bromide taken at bed hour. Others found that a dessertspoonful of the granular citrate of caffein was beneficial, while some told me that lemon juice or vinegar relieved the sickness and headache; but at this time it occurred to me to try salicylate of sodium, and after more than two years' experience of its strikingly beneficial effect, I feel justified in commending it to the members of the Medical Section. I am in the habit of directing the patient, when he awakes with any feeling of headache, to take twenty grains of the salicylate in a wineglassful of water, made effervescent by the addition of a dessertspoonful of the granular citrate of caffein, and if necessary to take a second or even a third dose at intervals of two hours. The effervescing caffein makes the dose a very palatable one, which the salicylate alone is not, and probably renders it more useful; but that the good effect is not due to the caffein is proved by the fact that I

have seen it relieve persons who had previously used the caffein alone without benefit. It does not, as far as I know, lose its effect, as a patient of mine, to whom I gave it more than two years ago, tells me that she finds it as valuable as when she first began its use. One lady informed me that she doubted the advantage of keeping off the attack, as she found that it did come at last, and was then far more severe than ever. This, however, has been in my experience a solitary instance of the storing up of the nerve storm—a phenomenon which has been from time to time observed when epileptic seizures were postponed by the administration of the bromides, and its occasional occurrence does not lessen the propriety of keeping off the headaches when we can.—*Dublin Journal of Med. Science, June* 1888, *p.* 489.

19.—ON THE TREATMENT OF MIGRAINE BY INDIAN HEMP.

By Richard Greene, M.R.C.P.Ed., Medical Superintendent, Berry-Wood Asylum, Northampton.

Since 1872 I have often prescribed cannabis indica, and I have yet to meet with a case in which at least some improvement does not follow the careful and continuous use of the drug. Unfortunately I have not kept notes of any of the cases, and for the following accounts I am indebted to Dr. Watters, of Stonehouse.

Case 1.—A female, aged fifty-three. Has been a martyr to this disease for twenty-five years; the attacks recurring very frequently. It was rare that eight days passed without one. In this case improvement began almost immediately; and the attacks are not only less severe, but are reduced to once a month.

Case 2.—Female, aged thirty-five. Had suffered from migraine for twelve years. She did not remember during that time ever being three weeks without an attack, and was ill for three days. Here, too, improvement began very soon after the treatment, and in eight weeks she considered herself cured.

Case 3.—Female, aged thirty-seven. This patient has had sick headache for many years. The attacks came on weekly, and lasted two days. After a few weeks' treatment she was much better, and has now been months without an attack.

Dr. Watters informs me that he tried Indian hemp in a case of persistent headache following exposure to the rays of the sun, and found that recovery ensued, after bromide of potassium and other drugs had failed. Of course the result here might be merely a coincidence, but the cases of migraine cannot be relegated to the chapter of accidents. It should be noted that the treatment here advocated afresh is not merely a palliative one during the paroxysm, like the use of guarana, caffein, hypodermic morphine or nitrite of amyl inhalations, but is often curative and nearly always gives some lasting relief. Dr. Seguin, in the pamphlet already mentioned,

says:—"I think that we may say of cannabis for migraine that it is nearly as efficacious as the bromides in epilepsy. Both *may* cure, both *do* bring about remarkable interruptions in the series of attacks, both must be employed in the shape of the continued dose." Dr. Seguin adds that cannabis in migraine is less effectual than bromide in epilepsy. Here I am unable to agree with the American physician. My experience in the treatment of epilepsy has not been small, and I have seen many cases of migraine. In reviewing both, I am confident that in my hands recovery has more frequently followed cannabis indica in migraine than bromides in epilepsy. My experience would further lead me to believe that cannabis is more useful in women than in men, probably because migraine in women is often accompanied by some irregularity of the uterine functions, and cannabis has long been credited with some specific action on the uterus.

It is necessary to persevere with the treatment for at least many weeks. Dr. Seguin followed the excellent plan of obtaining from his patients a promise that they would take the medicine for three months. It is, however, usual for improvement to show itself earlier than the expiration of three months; and when decided relief is felt there is not much fear but that perseverance in the treatment will follow the improvement, as migraine is the reverse of a pleasant companion, and often unfits its victim for an active life several days in every month.

The alcoholic extract is the best form of the drug to prescribe, and nothing but the freshly made preparation can be relied on. It is very necessary to insist on this. One-third of a grain made into a pill and taken every night, or every night and morning, is generally sufficient to begin with, and in severe cases the dose may be quickly raised to half a grain or two-thirds.

I have never seen unpleasant symptoms follow this course, except in the case of a patient who foolishly took a double dose before breakfast, and in whom slight but not alarming toxic effects were produced. It seems certain that more than one grain should never be given except to patients habituated to its use, and even in them I would not order so much unless the extract were part of the specimen from which the same patient's last prescription had been made up. The British Pharmacopœia correctly gives the dose at from a quarter to one grain, while in Christison's Dispensatory it is put at from two to five grains, a statement which can only be explained by supposing that the extract used was either old or carelessly prepared. Still it would seem not to be generally looked on as a poison. I see no mention of it in Taylor's book, and Mr. Wynter Blyth passes it by in his work on Poisons.

Unlike opium, no craving for further doses follows its medicinal use, and apparently it can be given up without the slightest effort at any time.—*Practitioner*, *July* 1888, *p.* 36.

20.—ON THE DIAGNOSIS AND TREATMENT OF SYPHILITIC AFFECTIONS OF THE NERVOUS SYSTEM.

By T. McCall Anderson, M.D., Professor of Clinical Medicine in the University of Glasgow.

[Dr. McCall Anderson takes for his text, as it were, a statement of Diday's, in which the belief is expressed that modern syphilis is in most cases a mild disease, generally curable enough, and rarely followed by affections of the nervous system. This, Dr. Anderson says, is entirely opposed to his own experience of the disease, and he then proceeds to discuss, in a series of propositions, the grounds upon which the syphilitic nature of a lesion of the nervous system may be suspected. (References to some most interesting cases are not reproduced here.)]

1. *A History of the Entrance of the Syphilitic Poison into the System.*—Positive evidence of this is of great value, but negative evidence should not divert us from our suspicion, if, for other reasons, a syphilitic basis is probable. Many patients are ignorant of, or forget their having contracted syphilis (for the initial lesion is often a very trifling matter, and the poison may enter the system in a great variety of ways), while many are loth to admit that they have ever exposed themselves to such infection. The interval, too, which has elapsed since the time of infection is often so long as to put us off our guard, and to render it likely that we may fail to connect the disease of the nervous system with the syphilitic contamination as cause and effect; while, with certain limitations, it may almost be said that the longer the poison has lain dormant in the system, the more likely are internal organs to suffer. We must also bear in mind that diseases of the nervous system may be the result of hereditary syphilis, the history and evidences of which must be carefully inquired into.

2. *The Discovery of other Manifestations of Syphilis.*—In those comparatively infrequent cases of implication of the nervous system in the secondary stage of syphilis, we are pretty sure to find evidences of the disease on the skin, mucous membranes, &c. But as the nervous system generally suffers in the late stages, such evidences are not certain to be found, and, when present, they are usually much less numerous. What we must specially look for now are tubercular eruptions, serpiginous ulceration, gummy tumours in the subcutaneous tissues, deep ulceration of the palate or of one side of the throat, syphilitic disease of the tongue (which must not be confounded with the so-called tylosis linguæ), periostitis, enlargement of a testicle, or amyloid disease of internal organs without any other probable cause to account for it.

3. *The Discovery of Traces of bygone Syphilitic Manifestations.*—Amongst these may be mentioned a cicatrix upon the penis, usually slight, and not otherwise satisfactorily accounted for;

circular cicatrices on the skin with sharply-defined edges, and often with coppery areolæ: these are especially valuable if not situated below the knee; scars at the angles of the mouth or on the palate or fauces; perforation of the septum nasi, atrophy of a testicle or indurations upon the superficial bones, the remains of attacks of periostitis.

4. *The Presence or the History of Pain in the Joints, Bones, or Head.*—This feature is very suspicious if it is markedly worse at night. Indeed, it may almost be said that pain which is agonising at night and disappears by day is pathognomonic of syphilis. At the same time the converse does not hold, for syphilitic pain is not always nocturnal in its exacerbations. When such pain is in the head, it usually involves only a part of it—oftenest a lateral half—or it may be very localised, in which case it is often accompanied by tenderness on pressure. Sleeplessness is a frequent concomitant of headache, but it often occurs independently of it, and when met with in persons who are not advanced in years, and along with other symptoms pointing in the direction of syphilis, it is a very suspicious symptom. It may be permanent, or there may be intervals of comparative or complete immunity from it.

5. *The Appearance of the Patient.*—The syphilitic subject is very likely to have lost his healthy appearance, and to have a dirty, earthy, sallow complexion, which is all the more marked the longer the poison has remained unchecked in the system. This peculiar form of anæmia is not constantly present, but, when pronounced, it is very significant of syphilis to the skilled observer, especially if he knows the patient to have had a clear complexion in earlier years.

But although there is conclusive evidence that the patient has contracted syphilis, or even if he presents unmistakable symptoms of that disease at the time, it does not follow of necessity that the disease of the nervous system is syphilitic; for there is nothing to prevent a syphilitic subject from having a non-syphilitic nervous trouble. The combination may be a mere coincidence, although such cases are far from common, and demand very careful investigation into all their surroundings before concluding that the affection of the nervous system is not specific.

6. *The Age and Sex of the Patient are very Important.*—Syphilitic affections of the nervous system are met with at all ages, but most usually at or before middle life. If, therefore, we are able to exclude other causes of the disease under observation which are common in comparatively young persons, the probability of syphilis is great. Thus, if hemiplegia occurs at the age of 30 or 40, and there is no kidney or heart disease, and no traumatic cause to which it can be traced, and no premature degeneration of the coats of the blood-vessels which are within reach, the suspicion of a syphilitic basis is strong. My experience

coincides in this respect with that of Buzzard, who says that, "putting aside cases of injury, hemiplegia, or paraplegia occurring in a person between 25 and 45 years of age, which is not associated with Bright's disease, nor due to embolism (from disease of the cardiac valves) is, in at least 19 cases out of 20, the result of syphilis." Again, epileptic convulsions, due to syphilis, very rarely set in under 20, and generally long after that age, while genuine epilepsy, in a large proportion of cases, commences between 10 and 20 years (in 106 out of 172 cases [Reynolds]). Of the twenty-four cases above-mentioned, the syphilitic nervous affection occurred in nineteen between the ages of 24 and 45, and in the remaining five the patients were 48, 48, 49, 62, and 62 years old. The influence of sex is also well marked, there having been twenty cases in males to four in females, a circumstance which is due mainly to the fact that syphilis is much less frequently contracted by women than by men.

7. *The Occupation of the Patient.*—Syphilitic affections of the nerve-centres are believed by Lancereaux and others to be much more frequent amongst the members of the learned professions, and those who work with their heads, than amongst the lower classes, and those who work with their hands, owing to the demand for greater exertion of the brain, and I daresay, relatively, they are; but I am not inclined to make much of this from a diagnostic point of view, having encountered so many cases in hospital practice. This probably arises from the greater frequency of syphilis among the working classes, and from the very general absence of careful and prolonged treatment in the earlier stages of the disease.

8. *Syphilitic Nervous Lesions are frequently Multiple.*—Although often single, they have a great tendency to this characteristic, so much so, that, whenever we meet with symptoms pointing to the existence of two or more separate lesions of the nervous system—for example, paraplegia and paralysis of a cranial nerve—the suspicion of syphilis being at the root of them must be seriously entertained, especially if we are able to exclude such disorders as diphtheritic paralysis, which should not be difficult if we are on our guard.

9. *The Variability of the Symptoms.*—If the symptoms of a brain lesion vary much from time to time, independently of treatment, and without any other obvious cause, the syphilitic basis of them is probable, for we rarely find this—to the same extent at all events—in the case of non-syphilitic affections.

10. *In Cerebral Syphilis certain Fundamental Types are very often recognised.*—These, according to Heubner, are as follows:—

(*a*) Psychical disturbances with epilepsy, incomplete paralyses (seldom of the cranial nerves), and a final comatose condition, usually of short duration. This type usually depends upon the

presence of a gumma in the subarachnoid space of the convexity ofthe cortex, which secondarily attacks the brain and leads to softening of subjacent parts, or upon diffuse gummous meningitis.

(*b*) Genuine apoplectic attacks, with succeeding hemiplegia, in connection with peculiar somnolent conditions, occurring in often-repeated episodes; frequently phenomena of unilateral irritation, and generally at the same time paralyses of the cerebral nerves. This form is generally due to syphilitic disease of the arteries, leading to their obstruction and to softening of the motor ganglia, especially of the lenticular and caudate nuclei. It is often accompanied by a new growth, commencing in the membranes at the base and extending to a variable depth into the interior of the brain. The peculiar somnolent conditions common in this variety are probably the result of narrowing, without total obstruction, of a large number of arteries, thus making an injurious impression upon the whole brain.

11. *Eye-Symptoms.*—A careful examination of the eye and its appendages frequently helps us to the diagnosis of a syphilitic nervous affection, or, at least, arouses the suspicion that the patient is tainted with syphilis, for the two propositions are not identical.

While any or all of the nerves supplying the muscles of the eye-ball may be affected (ophthalmoplegia externa, and interna), the third and sixth are those which are most frequently implicated in syphilitic disease, especially that branch of the oculo-motor for the supply of the internal rectus muscle; and nuclear paralysis of the sixth nerve, with conjugate deviation of the eye-ball, is of more diagnostic importance, as far as syphilis is concerned, than peripheral paralysis of that nerve. The cornea and iris are the structures of the eye-ball which are most frequently the seat of syphilitic affections. An intestinal inflammation of the cornea, accompanied by dullness of hearing and faulty development of the teeth, as pointed out by Hutchinson, may be regarded as distinct evidence of heredo-syphilis. More than 30 per cent. of all cases of iritis are said to be of syphilitic origin. It occurs usually during the secondary stage of the disease, and is generally symmetrical. When it is accompanied by the development of minute gummata along the margin of the pupil, or in the substance of the iris, it is pathognomonic of syphilis, and occurs, as a rule, at the close of the secondary or beginning of the tertiary stage of the disease. When the iritis extends to the choroid (irido-choroiditis), or when the whole of the uveal tract is simultaneously affected, associated with opacities in the vitreous, the disease probably has a very deep hold upon the system, and sooner or later symptoms of lesions in other organs, as the brain or spinal cord, may be expected to occur. On account of the intimate nutritive and anatomical relations of the choroid with the retina and optic nerve, these structures are often implicated,

giving rise to dimness of vision, with atrophic patches in the choroid in the region of the macula, or at the periphery of the fundus. This form of inflammation occasionally ends in atrophy of the eye-ball, and is of far more serious import than choroiditis disseminata, of which about one-half of the cases are said to be syphilitic.

Affections of the retina and optic nerve are comparatively rare apart from affections of the choroid; but in some cases of syphilis the patient complains of central dimness of vision, and in such cases the ophthalmoscope reveals a general mistiness of the whole retina, with veiling of the optic-nerve entrance. Such cases of retinitis usually implicate both eyes—the one after the other—are generally transitory, and are characterised by the fact that it is usually the central region which is most affected. The optic nerve may be affected in various ways (neuro-retinitis, neuritis, atrophy), but the appearances presented on ophthalmoscopic examination do not present any characteristic features to distinguish them from those which accompany non-syphilitic affections of the brain or cord, or of their membranes.

12. *Syphilitic Affections of the Nervous System are generally unaccompanied by Syphilitic Affections of the other Viscera, and vice versâ*—a circumstance which should be borne in mind, lest erroneous inferences might be drawn. Of the twenty-four cases already referred to, there was not a single one in which there was clinical evidence of the implication of any other internal organ.

13. *The Results of Treatment.*—In all cases in which there is a suspicion of the syphilitic basis of an affection of the nervous system we should give the patient the benefit of the doubt and put him upon anti-syphilitic treatment. If the symptoms unmistakably yield, our suspicion becomes a certainty, although the converse does not always hold good. A syphilitic lesion, even although we succeed in removing it by treatment, may have so compressed and damaged the tissues in which it was embedded as to preclude the possibility of a complete restoration to health. Syphilitic disease of the coats of the blood-vessels, too, may lead to their occlusion, and to softening of the parts supplied by them, which cannot, of course, be influenced by mercury or iodide. Hence hemiphlegia setting in suddenly is much less likely to be cured than when the symptoms develop gradually. In like manner hemiplegia, which is followed by descending degeneration of the lateral column of the cord, which is a non-syphilitic lesion, cannot entirely be recovered from.

Treatment.—Whenever we suspect that a nervous affection is of a syphilitic nature, we should attack it at once with anti-syphilitic remedies, and just as energetically as if we were absolutely certain of our diagnosis. A faltering hand under such circumstances is fatal. A very prevalent belief with regard to the

treatment of syphilis is that mercury is *the* remedy in the early, and the iodides in the late stages. Now I quite admit that iodine is *most* useful in the latter, and that mercury is *very* useful in the former: but at the same time I hold that some of the most brilliant results are achieved by mercury in old-standing cases of syphilis, and sometimes after iodide of potassium has failed. It may turn out, however, when we have had experience of the employment of heroic doses of the iodide (even to the extent of two ounces per day), which have proved successful and innocuous in the treatment of some cases of psoriasis, that more uniformly good results may be obtained from it. Our rule should be to begin with moderate doses—say ten grains thrice daily—and steadily to increase the dose, either until the symptoms yield or until the medicine begins to disagree.

Mercury may be given in a great variety of ways, which need not be enumerated ; but I have a decided preference for mercurial inunctions, or for subcutaneous injections, as we thus attain speedy and excellent results, while avoiding derangement of the digestive organs.

For inunction the mercurial ointment of the *Pharmacopœia*, or Shoemaker's 50 per cent. mercurous oleate ointment, may be used. The only objection to these preparations is their dirtiness, but in the case of the latter this difficulty may to a certain extent be overcome by preparing it without heat. In this way we obtain an ointment which, when freshly prepared, has a faint lavender tint. It should generally be continued for months after the symptoms have yielded, and those who keep their teeth and gums scrupulously clean are much less liable to salivation.

The subcutaneous injection of the perchloride of mercury has one great objection, namely, that it may induce painful indurations or even abscesses. Various mixtures have been devised with the view of overcoming this obstacle, but none of those which I have tried possess a marked superiority over a simple solution of 4 grains in an ounce of distilled water, of which 15 to 30 minims (gr. $\frac{1}{8}$ to gr. $\frac{1}{4}$) may be injected daily. With the view of preventing the occurrence of inflammatory reaction the following procedure, in whole or in part, may be adopted. The skin is first frozen with ether spray or with a small piece of smooth ice, the surface of which is sprinkled with salt and applied for a couple of minutes with the aid of a folded handkerchief. One-eighth of a grain of sulphate of morphine is then injected deeply into the cellular tissue of the hip or other insensitive part, or where there is much subcutaneous fat; the syringe is then detached from the cannula, and filled with the sublimate solution, and in two or three minutes it is again attached to the cannula, and the solution is injected. Thereafter a lump of ice is kept applied to the part until all uneasiness has subsided. The rapidity with which syphilitic

manifestations sometimes disappear, as well as the small quantity which requires to be used, as compared with the internal administration of the drug, is sometimes very astonishing.—*British Med. Journal, Sept.* 29, 1888, *p.* 693.

DISEASES OF THE ORGANS OF CIRCULATION.

21.—ON THE MECHANISM OF THE CARDIAC BRUITS OF CHLOROSIS.

By Graham Steell, M.D., Edin., M.R.C.P., Assistant Physician to the Manchester Royal Infirmary.

We have now to consider a murmur long familiar to clinicists, but of which a new interpretation has of comparatively recent years attracted attention. I refer to a systolic murmur heard in the second left interspace. The old belief is that such a murmur is formed in the pulmonary artery as a result of anæmia. Certain it is that such a murmur is of common occurrence in anæmic cases, that it is the predominant or only murmur present, and that it in no way indicates structural disease of the heart or its vessels. The new interpretation of this long familiar murmur is that it is really the murmur of mitral regurgitation, the incompetence resulting from impaired nutrition of the heart-muscle. Anatomically, we know that the appendix of the left auricle curves round the left side of the pulmonary artery to reach the front in the second left interspace. In cases of mitral stenosis in which great dilatation of the auricle had taken place we admitted that a systolic murmur was rarely to be heard over a pulsating area to the left of the sternum in the second interspace. But "in the absence of any great or well-marked auricular dilatation," such as one expects in mitral stenosis, it is alleged that a murmur audible in the second left interspace may own a mitral reflux origin. This view was set forth by Naunyn in 1868, and in confirmation of it he stated that the maximum intensity of the murmur was not over the pulmonary artery, but "an inch, or an inch and a half, or more, to the left of the left edge of the sternum," over the situation of the appendix of the left auricle. It seems to me that "an inch and a half, or more," is too far out for the situation of the appendix auricle, especially when it is dilated, and possibly partly covers the pulmonary artery. Dr. Balfour's statement seems to be more in accordance with anatomy, if the murmur is auricular, when he speaks of there being "a space between the stethoscope resting on the position of maximum intensity (of the murmur) and the left edge of the sternum, equal to at least the breadth of the tip of the middle finger." Granting, for the moment, that the maximum intensity of the murmur is outside the pulmonary artery, and therefore, presumably, over the auricular appendix, it has still to

be associated with the familiar forms of mitral regurgitation, revealed by a systolic apex-murmur. It is alleged that when the ordinary apex-murmur exists, it is frequently accompanied by a similar murmur in the second left interspace, usually, however, of less intensity, but occasionally of greater. We are next asked to believe that a reflux mitral murmur may be audible only in the second left interspace in the situation of the left auricular appendix, and finally, that the murmur which has so long been familiar to us as occurring in cases of anæmia is not produced in the pulmonary artery, but is, in short, a murmur of mitral reflux mechanism, the incompetence of the valves depending on defective muscle-adaptation, the result of malnutrition of the cardiac substance.

Let us turn, for a moment, to the natural history of the old-fashioned murmur of anæmia, leaving the question of its precise position of maximum intensity out of consideration. Before the occurrence of this murmur, venous hum in the neck has usually been present; probably, in all cases. Again, after the development of the second left interspace murmur a similar murmur becomes audible over the aorta.

Finally, but only when the anæmia has reached a very high degree, a murmur is developed at the apex of the heart. On recovery, it is known that the abnormal soniferousness of the circulation disappears in exactly the reverse order when all the murmurs have been present. Thus the apex murmur first disappears, then the aortic murmur, next the murmur in the second left interspace, and finally the venous hum in the neck. This is the statement of clinical experience, although it must be admitted that there seems to be some other factor in the production of the murmurs in question than the mere degree or duration of the anæmia, for two cases of apparently equal severity may differ greatly in the readiness with which they develop murmurs.

I have chosen this place to make a few remarks on the causation of murmurs, without some ideas on which the interpretation of these signs would, of course, be impossible. The theory which of late years has received most acceptance is that originally advanced by Sir Dominic Corrigan, in 1829. He showed that "when an artery is pressed upon . . . . the motion of the blood in the artery immediately beyond the constricted part (looking from the heart) is no longer as before. A small stream is now rushing from a narrow orifice into a wider tube, and continuing its way through surrounding fluid. The rushing of the fluid is combined with a trembling of the artery, and the sensation to the sense of hearing is the "bruit de souffle." Till lately, Corrigan's views gained little ground, the friction theory which explained the production of murmurs by friction "between the blood and the surface over which it passes" being generally received. In 1858, however,

Corrigan's theory was again advanced by Chauveau of Lyons, who experimentally proved that roughness of the surface over which the blood flowed would not account for murmur production. He confirmed Corrigan's theory, stating that the "bruit de souffle" is produced by the vibrations of the "veines fluides," which are always formed when the blood passes into a part of the circulatory apparatus actually or relatively dilated. We have here to do only with mitral murmurs, and for the obstructive kind of these the theory answers admirably, accounting well for the conduction of the presystolic and diastolic murmurs to the apex. In the case of the regurgitant mitral murmur, we can readily understand "veines fluides" being produced in the left auricle, but some additional explanation is needed to account for the transmission of the murmur to the apex. The late Dr. Hilton Fagge gave a most satisfactory one in the following words. Speaking of the experimental researches of Bergeon, he says: "One has only to provide the tube at the seat of constriction with a lip or rim projecting backwards into the stream, and a second murmur is at once generated, which is heard behind the obstruction. A *cul-de-sac* is formed, and the fluid which occupies this receives the shock of the onward current, and is thrown into sonorous vibrations." He adds: "The incompetent valves project backwards into the blood stream, exactly like the lip or rim employed by Bergeon."

To return now to the murmurs met with in anæmia, we have found that there may be (1) a continuous hum in the veins of the neck; (2) a systolic murmur heard in the second left intercostal space; (3) an aortic systolic murmur; and (4) an apex systolic murmur. They develop in the order mentioned, and disappear in the reverse order. How shall we interpret these murmurs? The venous hum is no doubt produced by the formation of "veines fluides," for, as Dr. Fagge wrote, "The lower ends of the jugular and subclavian veins on each side are adherent to the deep cervical fascia, and therefore cannot collapse, so that this venous ampulla, as it has been termed, affords the conditions necessary for the generation of a veine fluide whenever the blood stream in the jugular vein above is narrowed, whether by simple adjustment of its calibre to the diminished volume of the blood in anæmia or by pressure of the stethoscope, or by both." With reference to the second left interspace murmur of anæmia, I have found its position of maximum intensity to correspond with the situation of the pulmonary artery rather than with that of the appendix auriculi, supposing the latter to approach the surface, which it very seldom does, and I adhere to the old view that the murmur is produced in the pulmonary artery. No doubt "veines fluides" are formed at or rather beyond the pulmonary orifice, as in the venous ampullæ at the root of the neck, although the mechanism of their formation is not very clear. If we evade

the difficulty of the explanation by accepting the auricular regurgitant theory, we have still to reckon with the aortic murmur, which it seems to me the advocates of the auricular view of the second left interspace murmur rather ignore. On the other hand, if we hold that the murmur is produced in the pulmonary artery by the formation of "veines fluides," the explanation is as applicable in the case of the aorta, as of the pulmonary artery. For some reason, however, the condition necessary for the formation of "veines fluides" arises in anæmia more readily in the pulmonary artery than in the aorta, but the two phenomena are no doubt essentially the same in kind. The apex-murmur must, I think, be placed in a different category. I believe it to be a murmur produced by mitral incompetence from muscle failure, and we must bear in mind how the anæmic state intensifies murmurs, even of organic origin. There can be no question of the fact that anæmia not unfrequently gives rise to very considerable dilatation of the heart. In explanation, it has been supposed that there is high arterial tension. This may be so in some cases, but in a larger number, the blood tension is low. Even if high arterial tension did exist, it would not account for dilatation of the left ventricle, provided that this chamber was habitually able to complete its systole, and the mitral valves remained competent. On the other hand, we know that organic lesion of the mitral valves, rendering them incompetent, induces enlargement of the left ventricle, and the reason, of course, is that the intra-ventricular pressure is increased during diastole. With each contraction of the ventricle, blood is driven backwards into the auricle, as well as forwards into the aorta, but if the circulation is to go on as before the lesion, the auricle must pass on to the ventricle the regurgitated blood, as well as its normal delivery. There must follow excess of intra-ventricular pressure during diastole, and consequently enlargement of the chamber. If, then, we regard the apex-murmur of anæmia as a mitral regurgitant murmur (and I think we are bound to do so), the significance of the murmur becomes immense, for not only do the dyspnœa on exertion, the palpitation, and the dropsy of the lower extremities characteristic of anæmia acquire a fresh interest, inasmuch as it is impossible to determine how far mitral reflux is a factor in their production, but we know by its presence that the condition which makes cardiac dilatation sooner or later inevitable is established. I plead, therefore, for attention to the heart in anæmia, and I would urge the importance of rest in the treatment of all severe cases.

Accentuation of the pulmonary second sound and tricuspid regurgitant murmur occur in cases of mitral regurgitation as in those of mitral obstruction, but as they present no special features, I have not thought it necessary again to allude to them.—*Medical Chronicle, May* 1888, *p.* 103.

22.—ON SUDDEN DEATH FROM CARDIAC FAILURE.

By Fred. W. Mott, M.D., M.R.C.P., Medical Registrar to Charing Cross Hospital, London.

[Dr. Mott presents an interesting sketch of the physiological basis of cardio-vascular nutrition, and then proceeds to discuss the various pathological conditions found in cases of sudden cardiac failure. The principal causes of sudden death in connection with heart disease are stated to be *fatty degeneration* and *fibroid degeneration* of the cardiac muscle. Each of these has for its causes general and local conditions, such as pernicious anæmia, severe anæmia, anæmia following severe hemorrhage, high temperature, alcoholism, chronic Bright's disease, syphilis, phosphorus poisoning, obstruction of the coronary arteries from any cause, inducing a variety of dystrophies of the myocardium. The author concludes his paper as follows:]

Having now briefly alluded to some of the more important pathological changes met with in these cases of cardio-vascular disease, it behoves me to say something concerning the clinical aspects presented by them. As most of the patients were brought to the hospital dead very little is known of the manner of their death, or even of the previous history. Most of the cases occurred in men while following their occupation, and therefore death was as unexpected as it was sudden. Four of the cases, namely, Cases 7, 8, 9, and 19, were in the wards, and I had opportunities of observing their condition. The three former were cases of coronary atheroma with fatty heart. The latter (Case 19) was one of fatty heart in connection with exophthalmic goitre.

The chief fact which I noticed in several of these cases of fatty heart was a diffused visible impulse within the nipple line, the impulse being forcible and even heaving. There was no increase of cardiac dulness, and the pulse at the wrist could hardly be felt, some of the beats not reaching the periphery. A polygraph tracing was attempted to be made in Case 9, where this condition was extremely well marked. A very good cardiogram was obtained, but owing to the feebleness of the pulse it was quite impossible to take a tracing at the wrist. This increased action of the heart was apparent rather than real. I believe that it was due to the dilated ventricle coming more in contact with the chest wall. This dilatation frequently gives rise to mitral incompetence, and a soft blowing systolic murmur at the apex. The dilatation of the left ventricle enfeebled by degenerative change will cause sudden death by fatal syncope. I look upon it as taking place in much the same way as in aortic regurgitation, so lucidly explained by Dr. Lauder Brunton. In many of these cases death took place suddenly on the patient assuming an upright posture. The heart was unequal to the suddenly increased force required to drive blood to the brain against garvity, and as a result syncope occurred.

This was strikingly seen in Cases 7, 8, 19, 20, in which fatal syncope took place after admission to the hospital. Out of thirty-three cases collected by Dr. Quain thirteen died in this way. In eighty-three cases of "fatty degeneration" collected by Dr. Hayden sixty-eight died suddenly. Death may occur from fatal syncope, coma, or rupture of the heart.

As I have previously pointed out in my paper, the main indications to guide us in the diagnosis and prognosis of cardio-vascular degeneration are a history of chronic Bright's disease, syphilis, and strain. This latter condition is very important, for as Sir James Paget has well expressed it, "The principal character which all these cases of fatty degeneration seem to present is that they who labour under this disease are fit enough for all the ordinary events of calm life, but are wholly unable to resist the storm of a sickness, an accident, or an operation." A diagnosis of cardiac degeneration is of immense importance, and yet the symptoms, so far as my experience goes, are in many cases very indefinite. Dr. Quain, who is a pre-eminent authority on the subject, states: "Amongst the symptoms of the disease we then observe various modifications of the phenomena of drowsiness and coma, faintness and syncope, disordered respiration, pain in the region of the heart, and disturbed pulsation." Sir Thomas Watson states "that there is no sign or any group or succession of symptoms by which we can assure ourselves that a patient's heart is affected with fatty degeneration." Signs of cardiac failure, a feeble or diffused impulse, or the apex beat not recognisable by palpation, feeble and irregular pulse, episternal pulsation with tortuous arteries, arcus senilis, anginal symptoms, faintness and vertigo especially on assuming an upright posture, and breathlessness on exertion would, even in the absence of murmurs, lead to a much more serious prognosis than indications of severe valvular disease. In many of these cases there would be a history of chronic Bright's disease or syphilis. The hypertrophy of the heart in the former desease is very frequently a pseudo-hypertrophy, that is, the muscular fibres are degenerated and the fibrous tissue greatly increased, the result being that physiological compensation having failed dilatation supervenes. No doubt in these cases the treatment often indicated is to lower arterial tension. In all cases of suspected degeneration of the heart the indications are to avoid giving the organ much work to do. This may be effected by counteracting the tendency to the accumulation of nitrogenous waste in the blood occasioned by over-eating and drinking, and warning the patient against sudden excitement and worry; there is undoubtedly a great amount of truth in the expression "died of a broken heart." Sexual excitement, straining at stool, running to catch a train, and even getting out of bed at night to pass water, as pointed out by Dr. Brunton, are all (in advanced cases) dangerous. Cases such as I have

detailed are carefully looked for by medical officers to insurance companies, for they form a large proportion of unprofitable policies, owing to the difficulties attending a diagnosis, and the sudden and unexpected manner in which sometimes an apparently fairly healthy man in middle life drops down dead, perhaps not long after he has insured in a company on very favourable terms. Many men who are said to die of cramp in the water, die of fatal syncope from cardiac degeneration. Fagge, writing on the treatment of syncope, says, "In many cases of death by cardiac failure, life is extinct before aid can arrive, but sometimes the administration of a full dose of brandy or of ether by the mouth is effectual in arresting the danger, and the hypodermic injection of these remedies is still more likely to be successful, although the result is often but temporary." This was tried in some of my cases with only a temporary result.

Dr. Reade has recommended pouring hot water on the præcordial region, and others the application of a hot sponge. Some authorities recommend the application of galvanism, but there are several objections to this; the battery, for instance, is not usually at hand, and there is a risk, as was pointed out by Dr. Walsh, of inhibiting instead of stimulating the heart's contraction.—*Practitioner, Sept.*

23.—ON THE ADMINISTRATION OF ANÆSTHETICS IN CARDIAC AND PULMONARY DISEASES.

By Frederic Hewitt, M.A., M.D., Instructor in Anæsthetics at the London Hospital.

Morbus Cordis.—Although the existence of heart disease does not contra-indicate the employment of a general anæsthetic, it is desirable that we should exercise every care when called upon to anæsthetise patients suffering from valvular or other cardiac affections. The most important point to determine is the presence or absence of bronchial or pulmonary œdema and of pleural effusion as secondary results of the valvular mischief. There are, of course, many cases of morbus cordis in which the pulmonary circulation has suffered but little in the course of the malady; whilst in other instances, either from inability of the right heart to maintain the requisite tension in the pulmonary arterioles, or from the backward pressure of an over-distended left heart, or from a combination of both of these causes, such engorgement and œdema exist that the choice of the anæsthetic must be regulated rather by the pulmonary than by the cardiac symptoms. If after careful auscultation no evidence of pulmonary œdema be detected, the A.C.E. mixture or pure ether, administered from a cone, will be found to be most suitable. I have placed the A.C.E. mixture first, because with it I have anæsthetised patients suffering from nearly every form of heart disease, and I can thoroughly recommend it for all cases in

which there is an absence of pulmonary congestion and œdema. The objections which have been raised against the use of mechanical mixtures of anæsthetics are not so weighty (at all events in the case of the A.C.E. mixture) as they would at first sight appear to be. It is true that the rates of evaporation of alcohol, chloroform, and ether are distinctly different ; and in those mechanical mixtures which produce an anæsthesia which is due as much, or almost as much, to ether as to chloroform, such an objection might be a serious one. But with the A.C.E. mixture this is not the case. The anæsthetic influence of the small quantity of alcohol in the mixture may be disregarded ; whilst that of the ether can only be but slight, seeing that a large quantity of the latter agent is necessary to produce anæsthesia when administered with a copious supply of air. The A.C.E. mixture may, indeed, be regarded as producing its anæsthetic effect chiefly by reason of the chloroform it contains. But in consequence of the dilution of the latter with miscible fluids, and by reason also of the stimulant effects of those fluids, the mixture is, *cæteris paribus*, far safer than chloroform. Not long since I was asked to anæsthetise a lady who had had valvular disease of the heart for years. The history and stethoscopic examination went to show that there was old-standing mitral stenosis, but the dilated and hypertrophied right side had obviously succeeded in warding off pulmonary œdema. The pulse was intermittent and irregular ; the right heart bulged into and pulsated in the epigastrium ; and murmurs indicative of advanced mitral stenosis were present. The operator was about to remove the uterus and its appendages *per vaginam*. I selected the A.C.E. mixture, which I gave with great caution. Hurry in such cases as these should always be avoided, and the anæsthetic given in small quantities at a time. The pulse became steady under the anæsthetic, and once or twice fell to 50 beats per minute during the operation. The latter lasted an hour and a quarter. Not much blood was lost, and the anæsthetic was tolerated well throughout. The A.C.E. mixture is not only well borne in valvular disease, but also in those cases in which there is every reason to believe that fatty degeneration of the heart is present. It is common to meet with patients past middle life, and inclined to obesity, whose vascular systems, either from alcoholic habits or from other causes, have undergone profound degenerative changes ; the arteries are thickened, the pulse is weak, the heart's action is feeble, halting, and irregular, and hepatic disease is usually present. Now, in patients of this type there is no better anæsthetic than the mixture alluded to. Ether administered in a Clover's or Ormsby's inhaler is badly borne ; and chloroform is best avoided unless bronchial mischief or pulmonary congestion is present. Should ether be selected as the anæsthetic in cardiac disease, it may, in many cases, be safely preceded by nitrous oxide, or administered from the first

by Clover's inhaler. In uncomplicated mitral regurgitation, for example, notice need hardly be taken of the valvular condition, and ether may be given as in ordinary cases. But if the heart be acting feebly and irregularly, and there be evidence of extensive valvular disease, ether should not be administered by Clover's method, but should be given gradually from a cone or towel. If it be found, after commencing the administration of ether (or the A.C.E. mixture), that cyanosis and feeble or embarrassed respiration are produced, no time should be lost in changing the anæsthetic to chloroform. Should signs of pulmonary engorgement be present, chloroform, with or without a small quantity of alcohol (one-fifth to one-eighth), should be preferred to the A.C.E. mixture or ether. Chloroform is well borne in morbus cordis; but care must be exercised in its administration. As already mentioned, cases of morbus cordis with pulmonary symptoms really resolve themselves into pulmonary cases, and the administration of anæsthetics in such cases will be considered below.

Affections of the Respiratory Passages and Pleuræ.—In this group may be included the following: obstructive conditions of the air-passages producing dyspnœa—such, for example, as aneurysm pressing upon the trachea or main bronchi, tracheal stenosis, laryngeal diseases with stridor, &c.; advanced chronic bronchitis and emphysema, with secondary cardiac changes; chronic pneumonia; phthisis in its middle or late stages; pulmonary congestion and œdema arising in the course of other diseases; hydrothorax and pleuritic effusion; chronic pleural diseases with secondary lung changes; and empyema. In all of the above-mentioned morbid conditions the patient's respiration becomes more or less seriously affected, and great care must be exercised in administering an anæsthetic. Chloroform is the most appropriate agent for producing anæsthetic sleep in patients of this group. Its vapour is less irritating than that of ether, and less likely to increase any catarrhal condition that may be present; whilst the stimulant effect which it exerts upon the respiratory movements is far less than that produced by ether. The respiration of a patient under ether, especially if the latter be given with a Clover's or Ormsby's inhaler, is deeper, quicker, and more liable to alterations in rhythm from spasm of muscles directly or indirectly concerned in breathing, than that which is met with under chloroform. From these, as well as from other considerations, it will be obvious that there are serious objections to ether in the class of cases under discussion. The greatest distress in breathing may be produced by the administration of ether to patients with bronchial, pulmonary, or pleural diseases. In pulmonary engorgement and œdema, whether arising in association with local morbid states or from limited expansion of the lungs dependent upon abdominal distension or from other (general) conditions, ether and the A.C.E. mixture are

both contra-indicated. Cases of old-standing pleural disease, even though one lung be completely crippled, tolerate chloroform very well; in some cases there may be no thoracic expansion whatever, the breathing being wholly abdominal, and yet threatening symptoms are rarely met with when this anæsthetic is used. Whenever it is practicable, the patient should lie on his affected side; but I have known chloroform well borne even when patients have been lying the reverse way, with the affected side uppermost. Cyanosis is readily produced in these latter patients if ether be employed. In patients suffering from dyspnœa dependent upon a narrowing of any part of the air passages, the production of anæsthetic sleep is likely to be attended by considerable risk to life. This is especially the case if any bronchitic or pneumonic condition should coexist. In these patients natural sleep may be attended by cyanosis; indeed, it is sometimes impossible for the sufferer to obtain more than a few snatches of rest at a time. The greatest caution should be observed in producing general anæsthesia in patients thus afflicted. When natural sleep is attended by cyanosis or is productive of urgent dyspnœa, no anæsthetic can with safety be administered. Still, in cases, for example, of rapidly enlarging innominate aneurysm, the choice may lie between allowing the patient to die of asphyxia and asthenia, and tying the carotid and subclavian arteries. The risk should, in such a case, be explained to the patient or his friends, and only moderately deep anæsthesia should be produced. Respiration becomes in these patients a more or less voluntary act, and with the abolition of consciousness those muscles which have hitherto been instrumental in keeping the sufferer alive are no longer called into action, and the patient is made to fall back upon his ordinary muscles of respiration, which may be quite inadequate for the maintenance of breathing when an obstruction to the entry of air exists. Chloroform should be the drug selected, and it should be administered very slowly and cautiously. It must be borne in mind that, should breathing fail, very little good may result from artificial respiration, because it may be impossible to force air past the obstruction. Tracheotomy would of course save the patient if the position of the obstruction allowed of its performance.—*Lancet*, *May* 26, 1888, *p.* 1013.

24.—ON THE PULSE IN ITS RELATION TO DISEASE.

By George Johnson, M.D., F.R.S., Emeritus Professor of Clinical Medicine in King's College, London.

In discussing some variations in the condition of the pulse consequent on certain phenomena of respiratory and circulatory disturbance, I shall endeavour to show to what extent and in what way they stand to each other in the relation of cause and effect.

Taking first the condition of asphyxia, or rather of apnœa. I

have seen Professor Rutherford perform the following experiment: A dog, whose muscles had been paralysed by curare, was kept alive by artificial respiration. The chest and pericardium were opened so as to show the condition of the heart's cavities, and arrangement was made for measuring the blood pressure. When respiration is suspended and dark blood enters the systemic arteries the blood pressure there immediately rises, and the left cavities of the heart become greatly distended. The explanation is that the systemic muscular arterioles contract and thus resist the onward passage of the un-aerated blood. After a period of about two minutes the arterial pressure rapidly falls, the right cavities of the heart become greatly distended, while the left cavities are nearly empty. The explanation is that when the de-aeration of the blood exceeds a certain degree the *pulmonary* arterioles contract and bar the passage of the blood to the left cavities of the heart. The hindrance to the pulmonary circulation causes distension of the *right* side of the heart, all the wrinkles of the auricle become smoothed out, and it gets to look like a distended india-rubber ball. If you puncture it the blood spurts out, showing the tension which exists inside. Then the gorged condition of the right side of the heart and pulmonary artery extends to the systemic venous system, and this condition prevails until death.

Precisely the same order of things occurs from inhaling nitrous oxide gas. If you put your finger on the pulse you will find that, at first, it is remarkably full; this lasts for about three-quarters of a minute, and then a very sudden change occurs. The pulse suddenly vanishes entirely, the face is blue, and very likely epileptiform convulsions occur. I found that when a rabbit was killed by inhaling nitrous oxide gas, the right cavities of the heart were greatly distended, the left nearly empty, the blood on both sides of the heart being equally black. This distension of the right cavities of the heart during nitrous oxide anæsthesia shows great care is necessary in giving gas to persons with fatty, dilated and flabby hearts.

When death from apnœa takes place slowly, in consequence of gradually increasing difficulty in the respiration, this fulness of the pulse, which in poisoning by nitrous oxide is very transient, may last some time. I well remember being called in to attend a friend who was dying of pleurisy. One day his ordinary medical attendant told me he thought the patient was better because the pulse was more full and less frequent. I ventured, however, to suggest that the fulness of the pulse was caused by the non-aeration of the blood. His fingers were blue and his lips cyanosed, and his speedy death confirmed my view. Other things being equal, the heart's action will be slower, the greater the resistance to be overcome. This is a very important element in prognosis, as otherwise the apparent improvement in the pulse might lead you to express a more hopeful forecast than is justified by the circumstances of the case.

In chronic Bright's disease you get a somewhat analogous condition of things. Dr. Bright pointed out that the left ventricle becomes greatly hypertrophied without disease of the large vessels or valves to account for it. He suggested that the altered quality of the blood stimulated the heart to over contraction, or that there was some impediment to the passage of the blood in the terminal vascular system. That was a very good guess, because at that time the muscularity of the arterioles had not been demonstrated. I have often been enabled to diagnose advanced Bright's disease simply from the state of the pulse, for you do not get that peculiar condition of the pulse under any other circumstances. The pulse is hard and tense, and it is scarcely possible to obliterate temporarily the radial arteries. Owing to the tension to which they are subjected the larger arteries become tortuous as well as hard.

It is a physiological law that muscular hypertrophy results from continuous forcible muscular contraction. It occurred to me that the muscular walls of the arterioles might have something to do with the hypertrophy of the heart in Bright's disease. The idea was followed up and the hypertrophy of the arterial muscular coats was demonstrated. I have some diagrams here, enlarged from sections, which show very clearly the nature and extent of the changes which the arterioles undergo. I discovered these changes in the kidneys many years ago, but it was some time before the same changes were shown to take place in the arterioles of other tissues. The intima also undergoes hypertrophy without structural change. The physiology of all this is, that the kidneys are very much disorganised, the blood is imperfectly purified and its passage is consequently resisted by the systemic arterioles: the result is hypertrophy of the walls of the vessels and of the left ventricle upon which devolves the labour of forcing the blood through the resisting arterioles. Some people thought it absurd, at first, this idea of two forces in physiological antagonism, but this antagonism is universal throughout the body, though, of course, there is normally some sort of balance. The muscles counteract each other on opposite sides of the limb, the muscles of inspiration and expiration, the circular and radiating fibres of the iris balance each other, and so on. The idea, *a priori*, is therefore not as absurd as it was thought to be. The condition in Bright's disease is simply an example of a physiological balance of muscular forces.

This tension of the arteries is often attended with disastrous consequences. One of the most common is rupture of one of the arteries of the brain, a frequent termination to such cases. You can imagine the disastrous effects upon the brain when the blood is forced out through the ruptured artery by the greatly hypertrophied left ventricle.

Now, let us suppose a case of mitral disease. When the mitral valve is either narrowed or incompetent so as to allow of reflux,

of course the aorta is imperfectly filled and we get a small pulse. You cannot judge of the severity of a heart case from the intensity of a murmur, but if you find a systolic bruit at the apex while the pulse is small and thready, then you know that there is serious interference with the propulsion of the blood. In the same way it is not the strength of the presystolic thrill, but the weakness of the pulse, that must be your guide when the mitral orifice is constricted.

When the aortic valves are incompetent, the blood flows back into the ventricle which becomes greatly distended and dilated. The dilatation may go on to such an extent that the mitral valve also becomes incompetent and you get double regurgitation. The hypertrophy, of course, is conservative, and the greater the hypertrophy the less is the dilatation. You may often diagnose this condition by the pulse. It may be very full, because a very large volume of blood is projected into the artery, but if so, the artery does not remain full, because directly the diastole begins some blood regurgitates into the ventricle and the pulse collapses. In aortic regurgitation, therefore, the characteristic features of the pulse are its fulness and sudden collapse. When the mitral valve is also incompetent, the pulse is curiously modified. This double incompetency may be diagnosed by the pulse alone. It is much fuller than with only mitral incompetence, but not so full as it would be were the mitral valve sound.

The sphygmograph has afforded some interesting and useful information respecting the factors of the pulse, but it is not altogether to be relied upon for diagnostic purposes. I have known several instances in which the most egregious errors have been committed by a too implicit reliance being placed upon the tracings. One such instance was the case of a lady who consulted a physician for something wrong in the chest. He took a sphygmographic tracing and diagnosed advanced kidney disease. He acknowledged that he had not examined the urine, but said he was quite satisfied with his examination of the pulse. I went over the case very carefully, the heart's action was normal, pulse normal, and the only thing wrong about her were some hysterical manifestations. There was not a trace of albumen in the urine. This was some years ago, and she has remained quite well since. The sphygmographic tracing depends very much upon the pressure applied. I have sometimes seen two successive tracings of the same pulse, present marked difference in their general character, the second pointing to serious disease of the arteries. Mr. Hawksley, the surgical instrument maker, assures me that he can get whatever tracing he pleases merely by manipulating the pressure screw. I mention this in order to show you that although the information afforded by the pulse is invaluable, the record furnished by the sphygmograph is not entirely trustworthy.—*Medical Press and Circular, Oct.* 3, 1888, *p.* 333.

DISEASES OF THE ORGANS OF RESPIRATION.

25.—ON RHEUMATIC PNEUMONIA.

By W. B. Cheadle, M.D., F.R.C.P., Physician to St. Mary's and to Great Ormond Street Hospital for Sick Children, London.

[In a clinical lecture, Dr. Cheadle discusses the Incidence of Acute Pneumonia upon Cases of Acute Rheumatism. It appears, from the statistics of St. Mary's Hospital, that while in ordinary years acute pneumonia does not occur in one per cent. of the cases of acute rheumatism, at certain periods it occurs in as many as 23 per cent. of the cases. Such an outbreak, as it may well be termed, occurred during the summer of 1887, and it is to the six cases then occurring that Dr. Cheadle directs his remarks. After giving in more or less detail the narratives of the cases, the lecturer proceeds to the general discussion of the whole series as follows:]

1. Take first the relation between the pneumonia and the pericarditis. In every case but one pneumonia followed on pericarditis. In that case where pericarditis was not noted, it is just possible that it may have existed without signs in the shape of friction or effusion, for the patient had had rheumatic fever twice before, and may have had previous pericarditis and adherent pericardium. If this were so, the cardiac action would have been embarrassed, although in less degree, perhaps, than during active inflammation with recent exudation. In the five cases in which pneumonia supervened upon pericarditis, it came on after a definite interval. Thus in two cases it was six days, and in two seven days, after the first sign of pericarditis. In the remaining case (Case 5) the pericarditis existed fully developed at the time of the patient's admission, the pneumonia appearing two days later. The exact duration of the pericarditis was in this instance unknown; but from the physical signs it must have existed for some days. It is probable, therefore, that the interval between the onset of pericarditis and pneumonia was almost identical with that observed in the other instances.

2. In four out of the six cases there was old-standing valvular disease of the heart of great gravity; in three of these aortic stenosis and regurgitation, combined with mitral regurgitation. In the remaining two cases a mitral regurgitant murmur developed during the attack.

3. The next special feature to which I would ask your attention is that these cases of rheumatic pneumonia differ from ordinary lobar pneumonia in certain leading signs and symptoms. In the first place, in every instance, without exception, the pneumonia commenced in, and chiefly affected, the lower lobe of the *left* lung, instead of the right, as most frequently in ordinary pneu-

monia. In three cases (3, 4, and 5) there was a similar affection of the right, but this was always later in date.

In the next place, there was none of the hacking cough which is often a prominent symptom in pneumonia, and not only was there no *rusty* sputum, but expectoration, like cough, was altogether wanting. Another peculiarity noted by Dr. Sturges in his valuable monograph on Pneumonia—viz., absence of the usual signs of the first stage, and especially of fine crepitation—was also observed in the first case. The consolidation was complete when first found; there was no crackling. Yet this sign of the early stage was present in the same case during a relapse, and in all the others at first. I imagine that its absence in the primary attack in Case 1 was due to the disease having already passed out of the first stage before the state of the lung was examined, and this may possibly be the explanation of a similar absence in other instances also. It must be allowed, however, that crepitation was less abundant and well marked than in most cases of ordinary pneumonia.

And lastly, the temperature fell gradually in all these cases; the disease ended by lysis, not by crisis, as in about one-half the cases of true pneumonia. The concurrent arthritis and pericarditis would, however, tend to modify the true pneumonic chart.

Now this difference in the physical signs and symptoms in these cases, as compared with those of an ordinary croupous pneumonia, points to some difference in the morbid condition of the lung. The state of the air cells and bronchioles must differ largely from that in which there is irritant cough and free blood-stained secretion. In these cases the consolidation is probably due, as Dr. Sturges has suggested, to a rapid transudation of fibrin from blood in a highly fibrogenous condition, circulating under conditions of special mechanical difficulty. As pointed out before, in four of the present series of cases there was serious disease of the mitral valve to begin with; in the two remaining cases a mitral murmur had developed during the attack. In three cases there was double aortic disease in addition to the mitral affection, and in four pericarditis. The defect in the mitral valve would cause obstruction to the venous return from the lungs; pericarditis would cause serious embarrassment of the heart's action, and possibly coexistent myocarditis serious weakening of its muscular power. The concurrence of rheumatic hyperinosis would favour the fibrinous outpour.

But although these conditions may explain the ready occurrence of pneumonic exudation in these cases, and the variation in the symptoms and physical signs from the normal type, and also, perhaps, the more ready production of pericarditis, they throw no clear light upon the transfer of incidence from the right lung to the left. Of this feature I see no satisfactory explanation. But further granting that the heart affection and rheumatic state were

powerful predisposing causes of the pericarditis and pneumonia, there must have been yet another factor, some immediate exciting cause for this exceptional outbreak. Mitral disease of the heart and the acute rheumatic state are constantly coexistent without producing pneumonia or pericarditis. Or does the explanation lie in the fact that pneumonia is, after all, really more common in the course of acute rheumatism than is supposed? and is the fact of its being rarely observed due to its being overlooked? The absence of signs such as cough and rusty sputum, and the concurrent pericarditis, would tend to lead suspicion away from the lungs, while the reluctance to inflict the pain necessarily involved in a physical examination of the posterior portion of the chest in the case of patients to whom every movement is distressing often leads to its omission. This may account for some instances of oversight; but it is impossible to believe that it would account for all if such inflammation of the lung were really frequent. There can be no doubt that the occurrence of pneumonia in such a series of cases is exceptional, and the extreme frequency of pericarditis, which was altogether excessive and abnormal, supports this view. To what determining cause, then, must the outbreak be ascribed? It may have been due to some exceptional virulence of the "rheumatic poison," but of this there was no evidence. There was no abnormal affection of joints, no hyperpyrexia. I am loth to admit this begging of an easy solution. It was clearly not the result of treatment, for that was most varied; and, besides, all the remedies have been repeatedly given in similar cases without any such disastrous results. I am inclined to refer it to a much more simple and commonplace cause. In the past summer, at the season when this outbreak occurred, the weather was excessively hot and the wards were ventilated with unusual freedom. You know how susceptible to external cold these rheumatic patients are; how constantly getting out of bed too soon causes a relapse. In the profuse perspiration which attends acute rheumatism a chill would readily be produced by the strong currents of cold air which stream in from windows and ventilators, and this may reasonably be supposed to have determined the inflammation of pericardium and lung or pleura in the existing physical condition of organs so favourable to its production.

From this series of cases one or two useful practical hints may be deduced. The first is this: Whenever pericarditis arises in the course of rheumatic fever, or whenever an unexplained rise of temperature, or persistence of high temperature, or acceleration of respiration occurs, make a careful examination of the physical condition of the chest, behind as well as in front. Secondly: Always protect your rheumatic patient carefully against draughts by a canopy over the bed. I have obtained a number for use in the wards in these cases and in others, such as Bright's disease and

bronchitis, where surface chills are especially noxious. Lastly: Where pericarditis and pneumonia arise in the course of acute rheumatism, avoid the use of drugs such as salicylate of soda and aconite—marked cardiac depressants. In such cases one especial source of danger lies in heart failure. Use, therefore, salicin in preference to salicylic acid, or, better still, quinine in full doses of from three to five grains every four hours. With this citrate of potash may be combined, with the addition of citric acid for the solution of the quinine.—*Lancet*, *May* 5, 1888, *p.* 862.

26.—PLEURISY AS A CAUSE OF PHTHISIS PULMONALIS.

By Benjamin F. Westbrook, M.D., Brooklyn, U.S.

[The following conclusions are appended to an interesting paper dealing with the Relations of Pleurisy in all its Varieties to Phthisis, from a point of view mainly clinical. Cases of pleurisy antedating the outbreak of phthisis are divided into five classes, and of each class illustrative cases are narrated.]

1. Sero-fibrinous pleurisies, apparently simple in origin and terminating in complete recovery so far as the local manifestations are concerned, may be followed, after the lapse of a few months, by the development of phthisis pulmonalis.

2. In all probability, the pleurisy in these cases acts as a predisposing cause of the tuberculosis.

3. Primary sero-fibrinous pleurisy may result in fibroid phthisis, with the subsequent occurrence of tuberculosis pulmonum.

4. Fluid effusions remaining in the chest for a long time may finally so interfere with the nutrition of the lungs or of the body at large as to render it liable to tubercular infection, either local or general.

5. The rational deduction from these facts is, that no case of pleurisy should be neglected; that after apparent recovery great care should be taken that the health of the patient is completely restored before he is lost sight of by the physician. In the words of Sir Andrew Clark, "When we have a patient with basic fibrinous pleurisy, let us hold him fast, restrict his freedom, and treat him carefully until every remnant of it is gone." When all signs of effusion have disappeared, care should still be taken that the health of the patient is entirely restored before he is permitted to resume his former occupation, and if that occupation is one which involves any hygienic irregularities, he should be advised to change it. Where there is a previous history of phthisis in the family, still greater pains should be taken. The patient should remain away from business a long time, change his climate and entire mode of life if necessary, and should not be lost sight of by the physician for at least a year, even if his health is apparently entirely restored. When the patient has arrived at middle life,

when the costal cartilages begin to lose their elasticity, and the general mobility of the thorax is apt to be somewhat diminished, effusions should not be allowed to remain in the cavity of the chest for more than two or three weeks. If the fluid accumulates after aspiration, this should be frequently repeated, and at moderately short intervals. In the case of a lady about fifty years old, after five or six aspirations at intervals of from one to two weeks, I found that, in order to keep the lung expanded, and so secure a chance of its adhesion to the chest-wall, it was necessary to draw the fluid every second or third day. By doing this, the desired object was finally accomplished and the patient made a good recovery. In such subjects, not only are the chest-walls less mobile than in the young, but the presence of inflammatory exudation actually increases the immobility by hastening the process of calcification of the costal cartilages.

It is probable that the lives of three of the subjects of this form of disease whose cases I have narrated might have been saved by early and repeated aspiration. If they are encountered at a late period of the disease, when it is impossible to secure re-expansion of the lung, I believe that the operation of resection of the ribs, which was practised in one of the cases, is worthy of a trial. The post-mortem appearances in this case would indicate that, so far as the local disease was concerned, it was well calculated to accomplish the object for which it was performed. When the fluid is reabsorbed, but there are still dullness and feeble respiratory murmur at the base, the patient should be kept for a long time on the use of the most efficient tonics and alteratives, with very liberal diet and plenty of out-door exercise. He should also be instructed in the practice of respiratory gymnastics. When the health is sufficiently good, it is well even to inaugurate such exercises as the use of Indian clubs and dumb-bells. Under judicious exercise of this kind, I have seen a very markedly contracted side expand till its dimensions were equal to those of its fellow, with great improvement in the general condition of the patient. In more delicate subjects, in whom it is frequently advisable to use some passive means for expanding the chest, the inhalation of compressed air, or the equivalent treatment by the pneumatic cabinet, will sometimes give brilliant results.—*New York Medical Journal, June* 9, 1888, *p.* 620.

27.—DIAGNOSTIC VALUE OF ELASTIC TISSUE IN SPUTA IN THE EARLY STAGES OF PHTHISIS PULMONALIS.

By Francis Troup, M.D., M.R.C.P., Edinburgh.

Prior to the discovery of the tubercle bacillus, great reliance was placed on the presence of elastic fibres in the sputum as evidence of phthisis; they were considered pathognomonic of the disease, and even now I do not consider this view to be a very

highly exaggerated one. In no case of phthisis will they be missed if sought for with sufficient patience. They are to be found very early in the disease, and in the most innocent looking sputum. They will be discovered before stethoscopic or percussion sounds, even when listened to by skilled ears and interpreted by skilled brains, give any other than uncertain information as to what is going on. That they precede the bacillus, mayhap for a considerable time, as daily examination of the expectoration of more than one early case has taught me, I can affirm with confidence. Therefore their diagnostic value is of a very high order, and should not be disparaged in favour of the tubercle bacillus, to which I do not think a first place should be conceded. The bacillus may be absent temporarily, not so the elastic tissue, which may be detected abundantly where bacilli are extremely few in number. For its discovery no elaborate microscopical appliances are necessary—a power of 150, or even 80 diameters is amply sufficient, and when seen the evidence of lung disintegration is unassailable.

It has been said that unless the tissue has an alveolar arrangement much stress need not be laid on its appearance in expectoration. This is a great mistake. I show photos, selected from many in my possession, from cases of undoubted pulmonary phthisis, where this alveolar arrangement is very well seen, and others where the fibres are straight and in thick fasciculi, totally destitute of alveolation. No preparatory treatment of the sputum is needed for their demonstration. One, after a little experience, is able to select the dirty-white or reddish-yellow particles in which the fibres are likely to be found. A little morsel is pressed between the slide and cover-glass, and the examination proceeded with; or a drop of a 30 per cent. solution of caustic potass may be first added. As the fibres are not very compressible, they glide to the edge of the cover-glass, and will probably be seen there in greatest abundance. Different from the bacillus, it is not easy, to one accustomed to microscopic work, to mistake these fibres or to confound other things with them. One cannot say of tissue, however, that it is only present in the spit of phthisis—other destructive changes in the lungs cause its appearance; but if seen, the supposition is strong that this is the disease with which we have to do, and the supplementary search for the tubercle bacillus will complete the diagnosis. It is also as strongly resistant to putrefaction as the bacillus, and I have easily found both in a sputum sent from the antipodes. One of the photos handed round (they all have the magnification written on the back) shows how small a quantity is sufficient to attract the attention of a practised eye. Fenwick's plan of boiling with soda and dilution with water gives in the sediment a sort of epitome of the quantity of tissue contained in any sputum. I very seldom need to resort to this process, but I

show two photographs of tissue after the expectoration has been treated in this manner.

In earnestly urging the importance of searching for elastic fibre in the very early stages of phthisis, and in all cases where such suspicion is entertained, I may have unduly magnified its diagnostic position, and may have failed to rehabilitate and restore its discovery to its former, and, as I believe, proper diagnostic rank. Many may dissent from my views; of course, one man's experience, however extensive it may be, is not all experience; but I can truly say that the microscope, by revealing to me the presence of curly fibre in a sputum has, on not a few occasions, enabled me to know that a phthisis had begun when, had I trusted to my ears alone, nothing so grave and serious would have been apprehended; and conversely, to assert with well-founded confidence that other cases were non-phthisical whose signs and symptoms pointed strongly to a contrary verdict.

In conclusion I may remark, that it was the reading of the late Prof. John Hughes Bennet's Introduction to Clinical Medicine, published nearly forty years ago, which first led me to recognize the great importance of and satisfaction to be gained by a systematic examination of the sputa in suspicious cases of lung disease. It is with the Oberhauser microscope, recommended and furnished by him, that I have done, and continue to do, my chief work in that line of investigation; and it is with the No. 7 object-glass of Oberhauser's system that the photographs of lung tissue exhibited this evening have been made.—*Edinburgh Med. Jour., July* 1888, *p.* 5.

28.—ON THE DIAGNOSIS OF PULMONARY HYDATIDS.

By John D. Thomas, M.D.Lond., F.R.C.S., Physician to the Adelaide Hospital, Australia.

The diagnosis of echinococcus of the lung has to be considered in two phases, viz., that of the unruptured, and that of the ruptured cyst.

Diagnosis of the Unruptured Cyst.—When deeply seated, and of small size, it must be admitted that a diagnosis is impossible in the present state of our art; but it is very doubtful whether, under such circumstances, patients often deem it necessary to consult a medical man.

I have heard of a case where a member of a medical man's family suddenly, one day, coughed up a small hydatid cyst, which had caused no suspicion of its presence, and which gave rise to no subsequent inconvenience. When the parasite is of considerable dimensions or superficially seated in the lung, the physical signs usually point out unmistakeably the nature of the lesion. The principal signs are, as we all know, more or less deficiency of expansion of the affected region, which, however, rarely influences

the cyst behind and the chest wall in front was compressed, and yielded a well-marked tympanitic note, which extended over the greater part of the inframammary, mammary, and even to a less degree of intensity into the infra-clavicular region on the left side, the heart was, of course, greatly displaced to the right.

A still more striking instance of the production of this tympanitic note came under my notice lately in a boy, aged four years, whom I saw in consultation with Dr. Verco. Here, the only dull note present was found over a small area at the angle of the right scapula; over the greater part of the right back there was a well-marked tympanitic note, which was also present in the axillary regions and over a part of the right front; there was also impaired mobility of the right side of the chest, and slight fulness in the right infra-clavicular region. The respiratory murmur was greatly enfeebled over the region of tympanitic resonance, and in places it was almost inaudible, but there was nothing resembling the usual auscultatory signs of a cavity. For the production of this note, it is not even necessary that the parasite should invade the lung tissue, for I have observed it over a limited area in a case where a hydatid of the convex surface of the liver compressed the lower edge of the right lung in front, near the sternum. In this case it disappeared after the cyst was operated on. A tympanitic percussion note is not peculiar to deep-seated hydatids of course, for any deep-seated tumour which compresses the lung, e.g., an aortic aneurism, may also produce it. Of course I allude to the tympanitic note not connected with any cavity, signs, or indications of pneumothorax.

The Diagnosis of Ruptured Pulmonary Hydatids.—In the majority of these cases, the diagnosis is rendered easy by the expectoration of threads of membrane of the characteristic kind, but in some cases no such evidences are forthcoming for our assistance; the diagnosis then has to be made on other facts. In the case of hydatids rupturing into the pleura, the entire parasite may escape into the pleural cavity and then, of course, no shreds can be expectorated. In the majority of cases, it is not difficult to determine in a patient with a ruptured pulmonary cyst, where in the lung the remains of the bladder-worm are; but in some instances this appears to be impossible.

In illustration of this assertion, I may cite the case of Mr. C. This gentleman gave me the following history of his case on December 30, 1887. He enjoyed good average health until about fifteen or eighteen months ago, when he was seized with a "stitch" in the neighbourhood of the right nipple; at first he attributed this pain to the vigorous use of dumb-bells, but as it persisted, he consulted Dr. Hayward. At this time, I believe, no local cause for the pain could be discovered; the pain continued to increase in severity for about a fortnight, when signs of fluid at

the bottom of the right chest appeared, and he was tapped by Dr. Hayward, and pleuritic fluid was withdrawn; no relief to the patient followed this operation, and three weeks later a second puncture was made. The first tapping was made at the back of the chest, the second in front; by the latter, about half-a-pint of hydatid fluid was removed. Shortly afterwards, a third puncture, near the seat of the second one, was made, but no fluid came away. I saw him with Dr. Hayward in consultation, but on this occasion no physical signs pointing to the locality of the cyst could be discovered. After this time he continued apparently well, with the exception of an occasional slight cough, for about a year. His cough then became worse, and he sometimes expectorated blood and sputum of offensive taste. He then consulted Dr. Way, with whom I saw him on December 30, 1887. The patient further stated that for about two months past he had been coughing up large shreds of hydatid membrane, but that recently there had been no hæmoptysis; the general character of the expectoration was muco-purulent, and it was generally moderate in amount, but now and then it amounted to perhaps a quarter of a pint per diem. The physical examination showed scarcely a trace of anything abnormal; the liver was of normal dimensions, and in its normal situation; there was no abnormal dulness anywhere, in fact, the only discoverable suspicious symptom was a doubtful area of hyper-resonance about the angle of the right scapula. The respiratory murmur was everywhere of normal character and loudness. This case well exemplifies the occasional difficulty in the localisation of pulmonary hydatid, even when the fact of its presence is undoubted.

A still more embarrassing group of cases are those in which the very presence of the parasite is doubtful, and when the symptoms closely simulate those of phthisis. When the cyst is small, ruptured, and centrally seated in the lung, I believe that at present we must regard the diagnosis by ordinary physical signs as impossible. However, when the diagnosis lies between phthisis and suppurated hydatid, the examination of the sputum for the tubercle bacillus is an invaluable aid to a correct conclusion as to the existence of tuberculosis; of course the possible co-existence of the two diseases must not be overlooked.

In two cases recently, I have had the opportunity of examining the sputa in cases of suppurated pulmonary hydatid, and in neither was there the slightest indication of the presence of any bacilli that could be mistaken for those of tubercle. I have employed various kinds of stains, e.g., Gibbes's magenta and nitric acid process; Gibbes's "quick" stain, Ehrlich's aniline-oil and fuchsine stain, &c., but always with a negative result as regards tubercle bacilli in cases of pulmonary hydatid.—*Australasian Medical Gazette, May* 1888, *p.* 190.

29.—ON THE TREATMENT OF BRONCHIAL ASTHMA.

By C. Theodore Williams, M.D., F.R.C.P., Physician to the Hospital for Diseases of the Chest, Brompton.

[Enlargement of the bronchial glands being, according to Dr. Williams, a frequent cause of bronchial asthma, he strongly recommends the systematic use of the iodides and their preparations in almost all cases. So far as the attack itself is concerned, Dr. Williams says:]

The treatment of the attack generally resolves itself into the administration of antispasmodics, which may be classified as stimulant and sedative. Brandy and water, whisky and water—best administered warm, hot strong coffee, spir. ætheris (in drachm doses), and inhalation of nitrite of amyl are examples of this first class, and appear to act by promoting large bronchial secretion and expectoration, but the nitrite of amyl, which is said to influence the vasomotor system and to relax the arteries, has not been successful in my hands in asthma.

The sedative class of antispasmodics has much greater claims on our notice, as several of them, such as belladonna, stramonium, and henbane, have been indicated for use by the experiments of C. B. J. Williams in 1840, who found that, in animals poisoned by those drugs, the bronchial tubes were dilated, and incapable of being excited by any stimulus, and abundant clinical evidence has proved their efficacy in reducing the asthmatic spasm, but the difficulty lies in applying them at all times to the lungs, and bringing the pulmonary plexus and bronchial muscle fully under their influence.

The popular method of smoking them in cigarettes, or inhaling the smoke of deflagrating powders or pastilles, composed of the dried leaves of datura tatula, or datura stramonium, or lobelia, or belladonna, and nitrate or chlorate of potash, is useful up to a certain point, but in my experience the effect is more certain and stronger when the medicinal agent is taken into the stomach, or injected under the skin, and although use may be made of the various fuming powders for temporary relief, reliance should chiefly be placed on medicines containing the antispasmodics; as it would seem probable that the products of combustion of a plant must differ greatly from its natural juices, and sap carefully extracted, as is now done by pharmacy, and consequently exercise a different effect on the system.

The best way is to combine the stramonium, belladonna, or henbane in the form of succus or tincture, with the iodide of potassium, to be taken during the day, and to administer a pill of extract of stramonium (gr. $\frac{1}{2}$), or belladonna (gr. $\frac{1}{3}$), at night during the attack.

A useful form is the following:—Potassii iodidi, ℥ij to ℥iij;

tinct. stramonii, ℥ ij to ℥ iij; syrupi scillæ, ℥ j; extract. glycyrrhizæ, ℥ j; aquæ, ad ℥viij. Dose.—A teaspoonful in a wineglass of water, three times a day.

Of the various sedatives to be used during the attack, chloral is one of the safest and best, but a dose of from gr. xx to xxx should be administered at the beginning of the attack, or if there be premonitory symptoms, before it has actually commenced. A dose at bedtime will often enable an asthmatic to sleep through slight early morning seizures, and this medicine will, if pushed strongly, control the asthma. In one most obstinate case under my care, it was administered in gr. xx doses every four hours for several days, and allayed the severe spasm, but induced vomiting and an eruption of purpura. Another asthmatic, who can always keep his asthma at bay by hard riding during the hunting season, has taken chloral during the rest of the year in doses of gr. xx to gr. xxx during his frequent attacks, with no harm whatever, for about ten years. My experience with chloral, which I adopted from Professor Biermer's practice, has, on the whole, been highly satisfactory, and I consider it one of the most useful and least harmful of the sedative antispasmodics.

When the paroxysm is very severe, chloroform, or ether, or iodide of ethyl may be inhaled, and Martindale's capsules of chloroform (♏x), and iodide of ethyl (♏iij to ♏v), are specially well adapted to the purpose, as being tolerably safe to entrust to nurses and to patients. Iodide of ethyl can be inhaled up to ♏x, and the inhalations even repeated at the end of two hours without danger, and while it quiets the asthmatic spasm, it also calms the cough which accompanies it. In the height of the paroxysm the patient can neither swallow nor inhale, and it is then that the hypodermatic injection of morphia (gr. $\frac{1}{4}$) or of atropia (gr. $\frac{1}{60}$), or both combined, does great good, and often cuts short the attack at the very beginning. Another channel for introducing antispasmodics is the rectum, and suppositories of morphia or belladonna have often succeeded in relieving the tightness of the breathing when other measures were impracticable. With regard to the numerous powders, cigarettes, and tablets, if any distinction is to be made, I should certainly single out Himrod's powder (lobelia, stramonium, tea, and nitre), the Green mountain cure (also lobelia, stramonium, tea, and nitre, in different proportions to the Himrod), and Senier's powder, Savory and Moore's tablets, and the pulv. stramonii comp. of the Brompton Hospital pharmacopœia (℞. Pulveris stramonii, ℥ iv; pulveris anisi, pulveris potassii nitratis, aa ℥ ij; pulveris tabaci, gr. v), as the most effective. Among the cigarettes, Espic's and Joy's do most good, and all contain large proportions of stramonium and lobelia. Even tobacco-smoking gives relief, and Trousseau was able to control his own slighter attacks completely thereby. The application of stimulating liniments, such as lin. terebinth.

aceticum, or lin. ammoniæ, to the wall of the chest, during an attack, often gives great relief to the breathing, and is worth a prolonged trial.

One old-fashioned but very effective antispasmodic has been omitted, the ethereal tincture of lobelia, and it should certainly be tried, but in full doses, say of a drachm, and repeated every four hours while the spasm lasts. The various bromides, of potassium, ammonium, and sodium, are useful in large doses, but their influence on the pulmonary plexus is not so satisfactory as that of the iodides, though they may often be combined with these advantageously, and the addition of a drachm of the bromide of potassium to the chloral night-draught generally augments its sedative effect.—*American Journal of Med. Sciences, Aug.* 1888, *p.* 131.

30.—ON THE RELATION OF NASAL DISEASE TO ASTHMA.

By F. H. Bosworth, M.D., Professor of Diseases of the Throat, Bellevue Hospital College, New York.

[During the last five years Dr. Bosworth has had under treatment no less than eighty cases of asthma, in which the intranasal condition was noted, and in seventy-five cases treated by some operative procedure, such as the removal of polypi, application of caustics, adjustment of deflected septum, &c. 46 cases were "cured," 26 "improved," 3 "unimproved," and in 5 the result was unknown.]

In a paper published two years ago I made this assertion, that "a large majority, if not all, cases of asthma were dependent upon some obstructive lesion in the nasal cavity. This is evidenced by the immediate relief from the exacerbation by the use of cocaine in the nose in every case in which I have tried it, and, furthermore, by the cure of so many cases by the removal of the obstructive lesion in the upper air-passages."

The views there stated I would repeat with even more emphasis, for subsequent clinical observation has only served to confirm me in my belief of their correctness. That the lesion in a paroxysm of asthma is a vasomotor paresis of the blood-vessels supplying the bronchial mucous membrane, and not a bronchial spasm, I do not discuss, but accepting this theory as the only one which can explain the symptoms, the question arises, What is the connection between the nasal mucous membrane and that of the bronchial tubes? I have already written fully on the subject of the great respiratory functions of the nasal mucous membrane, and I need not repeat them here at length. In brief, the most intricate, the most delicate and most important part of the whole respiratory tract lies in the nose, in that mass of blood vessels which we call the turbinated tissues, and which serve to supply the inspired air with moisture, by pouring out upon the surface of the mucous membrane a large

amount of water—sixteen ounces in the course of the day—by which the inspired air becomes saturated with moisture, this function being necessarily regulated with an extreme degree of nicety of adjustment. This establishes, in what way or through what nerves or ganglia I do not discuss, but to my mind does unquestionably establish a most intimate connection between the two portions of the respiratory tract. The blood supply in the nose being regulated by the same vasomotor tract as that which regulates the blood supply of the bronchial tubes, a disturbance in one region is liable to be followed by a disturbance of the other; a morbid condition in one region renders the other especially susceptible to diseased processes. This, briefly, is the history of the connection between the two parts. Hence, we see, therefore, how a diseased condition in the nasal cavity may predispose a neurotic patient, under favourable atmospheric conditions, to an attack of asthma; the same line of reasoning, as will be noted. being followed here as in the case of hay-fever. This connection between the two regions I have not found alluded to by any writers, and yet I cannot but think that Hyde Salter must have entertained a somewhat similar idea when he says, in speaking of the causation of asthma, that we may divide the cases into two classes: First, cases in which the essential cause of disease, "that which constitutes the individual an asthmatic," is some organic lesion, possibly not appreciable, either in the bronchial tubes or some part physiologically connected with the bronchial tubes. Second, cases in which the organic lesion does not exist, in which the tendency to asthma is due to something from within, not from without, in which the cause of disease is a congenital and possibly inherited indiosyncrasy. The large clinical observation and study which were the basis of Salter's classical work, could not fail to have impressed upon him that a diseased condition of the upper air-passages was prominently active among the predisposing causes of asthma. It would seem a rather broad statement to make that all cases of asthma find their predisposing cause in intranasal disease, and yet I am very confident that it is very largely, if not entirely, true. Certainly, in my own observation, I have seen no case in which this could not be stated. The question suggested by Mackenzie here arises, What constitutes a typically healthy nose? Mackenzie seems to think that there is a very large difference in individuals, even in health, and rather suggests that a typically healthy nasal cavity is difficult to find. On the contrary I think that every nasal cavity which shows a departure from the normal type should be regarded as in a diseased condition. The true test, however, in these cases is this: if we find diseased conditions, the removal of which cures an asthma, my proposition, in that individual case, is certainly established. I make the general statement that all cases of asthma have intranasal disease, without giving

definite proportions. This may seem rather broad, when we find eminent physicians of the present day, such as Fothergill, Flint, Loomis, and others, adhering to the old theory of bronchial spasm, and not mentioning pathological conditions in the nasal chamber as a possible cause of the disease. That my view is by no means entertained by laryngologists is shown by the fact that Böcker makes the statement that asthma is seldom associated with polypi and seldom cured by their removal, and that ha -asthma is caused by direct irritation of the bronchi, and, further, that, normally, asthma cannot be produced in the nose.

This first assertion of Böcker seems, to me, to be a very grave reflection on his skill as an operator. In the "Union for Internal Medicine," May and July, 1886, Lublinski, Heyman, Böcker and Krause assert that, in many cases, asthma is independent of a pathological condition of the nasal passages. Schech, however, states that, in sixty-four per cent. of cases of asthma, he found intranasal disease, and further adds that there must be associated excessive nervous irritability—in other words, the neurotic habit.

It is not the province of this article to discuss the general therapeutics of asthma, for in the large majority of my cases, the treatment has been purely local, and yet, in many instances, internal medication has successfully been resorted to, such as the use of the iodides, zinc and belladonna, the three remedies on which I have placed the greatest reliance.

The point to which I desire to give the greatest emphasis is that local treatment of the intranasal disease, which I have invariably found in my cases, affords us by far the most satisfactory method of controlling this distressing and heretofore intractable disease. This seems to be particularly true when the case presents itself for treatment before the age of twenty.—*American Journal of Med. Science, Sept.* 1888, *p.* 251.

31.—ON ACUTE INFECTIOUS PHARYNGITIS.

By E. M. Hewish, M.D., F.R.C.S.Eng., Philadelphia.

The above-described disease will, I believe, to the majority of us, prove to be a new one. How many may have anticipated the addition of a new medical term to our nomenclature, to express a pathological condition with which they, at one time or another, may have met, it is impossible to say, since we have not in medical literature probably more than a half dozen cases. What impressed upon me the novelty, and later on the extreme gravity of the disease, was having met with a case in practice during March last.

While in attendance upon another member of this gentleman's family he casually drew my attention to his throat, which he said was painful on swallowing. On examining it, I found the anterior

pillars, uvula, tonsils and posterior pillars of the fauces congested. The patient complained of lassitude, vague pains in the extremities, voice not clear, and a considerable amount of tenacious mucus; it requiring great effort to free the throat. The patient, a man of forty-two years, weight about 180 pounds, had always been in good health. Temp. 101°F., pulse 90. Prescribed Tab. hydrochlor. cocaine gr. one-fifth, every hour, to relieve dysphagia, also gargle ammon. mur. gr. v, to ℥ss water, and a pill of ℞. Quin. sulph. gr. ij; ammon. mur. gr. ij; sol. ferri chlor. gr. ij. One after each meal. Patient continued to attend to business (merchant tailor), contrary to monitions, and it being the severe weather of last March, matters were readily precipitated. In three days' time he took to bed, as advised, and since the articular stiffness was still complained of, I prescribed ℞. Sod. salicyl. gr. xv every three hours till relieved, but little relief was obtained.

At this time, cervical tumefaction began to show itself; no special glands could be felt enlarged; the swelling was symmetrical in all directions; dysphagia severe; tonsils much enlarged, and on palpation were quite hard, showing no tendency to formation of abscess; nor did they at any time during the disease; voice husky, and dyspnœa somewhat complained of. *5th day.* Saw patient early, as he complained severely of dyspnœa and dysphagia; temp. 102°, pulse 110; had no rest during the night on account of inability to remain in bed, and consequently sat up in a chair. Tonsils and uvula same as heretofore; a small ulcer had formed on the side of the uvula. Externally the swelling had increased. *6th day.* Saw patient early, as dyspnœa was very alarming to himself and family, who thought he must soon strangle if not relieved. He sat up during the night, although I had ordered him ¼ gr. morph. sulph. and had it repeated in an hour, but it did not secure rest. Little nourishment was taken on account of dysphagia. Neck very much swollen, but no fluctuation or tenderness. Lungs showed no symptoms of complication; heart-sounds normal; temp. 101° F.; pulse 112. Patient now taking tr. ferri mur. ♏x, ammon. mur. gr. v, aquæ ℥ss, every two hours. *7th day.* Dyspnœa still more marked. Dr. W. Osler saw the case with me this A. M. Same treatment continued as heretofore. We anticipated tracheotomy, should breathing not improve. Was with patient most of the day. Toward evening the eyelids grew quite puffy. Dyspnœa increasing. *8th day.* Summoned early to see patient, as his family thought he could not breathe much longer, with the same difficulty. With Dr. W. Ker Shea's assistance I opened the larynx without an anæsthetic. We had promised considerable relief for the dyspnœa from the operation, but to our extreme annoyance the amount of relief which we had anticipated was not forthcoming. Drs. W. Osler and H. R. Wharton saw the patient with me again to-day.

Although the tube which we used was a large one, Dr. Wharton thought that his largest and longest canula might give more relief; it was introduced, but the dyspnœa still increased. *9th day.* At 6 a.m. patient died.

Professor Senator *(Berliner klin. Wochenschrift)* discusses the pathology of this disease, and I do not think we can do better than give his own words: The term infectious pharyngitis, which should be supplemented by the word "primary," is used to indicate a rare and "perhaps always fatal" form of pharyngitis, not hitherto described in text-books of medicine. Two examples had occurred within the last few months, and a study of similar cases had revealed three more as having occurred within the last twelve years. In all these cases, reported at a meeting of the Berlin Medical Society on January 4th and discussed on January 18th, the disease affected previously healthy persons, without any apparent cause, and ran an acute course, ending in death in a few days. It began with cervical pains and dysphagia, accompanied by fever, often moderate, then followed by hoarseness or loss of voice and dyspnœa; finally, the sensorium was affected, and death quickly ensued.

The chief anatomical sign, found post mortem, was diffuse purulent infiltration of the deeper tissues of the pharyngeal mucous membrane, the inflammation extending to the trachea and glands of the neck, and, secondarily, to other parts, especially the gastric mucous membrane. Senator is of the opinion that many cases hitherto regarded as examples of acute œdema of the larynx were in reality cases of the above disease. Notably, in a case of Cruveilhier's, the pharynx was affected for a day or two before the larynx. The very rare "typical œdematous laryngitis," mentioned by Sir Morell Mackenzie as of septic origin, is also claimed as in all probability affording an example of the disease in question.

The spleen was generally enlarged in Senator's cases, and the kidneys, as a rule, showed parenchymatous inflammation. A peculiar exanthem appeared in one case. The blood removed both before and after death had been carefully examined, but no specific micro-organisms had revealed themselves in attempted cultivations; injections of which, as also those of fresh blood, had been harmless in rabbits. The streptococcus of Friedländer (erysipelas coccus) was certainly absent.

In the discussion which followed, Dr. Guttman argued that the cases were probably erysipelatous, in spite of the fact just mentioned, and referred to Ziemssen's Special Pathology and Eichhorst's Pathology. Virchow leaned to Guttman's opinion, but also described other pharyngeal diseases which might mislead, especially metastatic abscesses in puerperal fever, suppurative pharyngitis accompanying acute gastritis, and, in one case,

mediastinitis; but Senator urged, in his reply, that there was no abscess in any of his cases, but a diffuse purulent infiltration, always beginning in the pharynx. The cause was absolutely unknown to him at present, but the system was very rapidly affected in a characteristic manner, and tracheotomy was of no avail. He had no doubt that a study of the subject, as revealed in hospital records, would disclose numerous examples of this disease, overlooked under the title of "acute œdema of the larynx." Unfortunately we could not obtain a post-mortem examination in our case.—*Medical News, Sept.* 8, 1888, *p.* 264.

32.—ON THE TREATMENT OF PAROXYSMAL SNEEZING AND HAY FEVER.

By Sidney Ringer, M.D., F.R.S., University Coll.; and William Murrell, M.D., F.R.C.P., Westminster Hospital, London.

The remedies employed in the treatment of paroxysmal sneezing may be divided into two categories: first, those which break up the paroxysm; and, secondly, those which by a gradual action so modify the pathological condition of the mucous membrane that the predisposition to their return is removed. In the former class first and foremost comes cocaine. Some three or four years ago we had under our care a student of the Westminster Hospital, Mr. John Watson, who gave a most interesting account of his observations on the topical application of cocaine tabloids. The attacks in his case usually commenced about the last week in May, and continued without intermission until the end of July, the discomfort and inconvenience experienced being so great that during the summer months he was practically incapacitated for work. Over and over again has he left our lecture on materia medica, his handkerchief to his nose and his eyes suffused with tears. His most prominent symptom was sneezing, which came on in paroxysms often in the most interesting part of an exposition of the physiological action of some new and valuable drug. The attacks, he assured us, were quite uncontrollable, and he often had to resort to violent muscular exercise, such as a game of billiards, to subdue them. He was fond of theatrical entertainments, and found peculiar relief in the atmosphere of the playhouse. Other symptoms were itching and irritation of the nose, with smarting and tickling of the mucous membrane of the nares and septum. There was an irresistible desire to violently rub the offending member with a coarse pocket handkerchief, although painful experience had taught him that it ultimately intensified the trouble and irritation, which returned with redoubled vigour immediately after the application. At the same time there was a copious secretion of acrid mucus, which seemed to act as an irritant and inflame the surface with which it came in contact. There was

tickling and itching of the margin of the lids, which were pressed together in the vain hope of obtaining relief. The hard palate burnt and itched so intensely that the tongue had to be forced backwards against it in order to relieve it. The pollen of hay, either growing or stacked, was found to be the most potent cause, but minute particles of any kind floating in the air would act in a like manner. The susceptibility was so great that no remedy which had been tried, and there were many, had afforded the slightest relief. At last, at our suggestion, he obtained some tabloids of cocaine, which he introduced into each nostril, pushing them well up with the tip of the little finger. It was found that they would adhere to the mucous membrane without difficulty, and that they caused no pain or irritation, but afforded prompt and instant relief, not only to the coryza, but to the accompanying symptoms. The tabloids first employed contained a sixth of a grain, but subsequently the half-grain tabloids were substituted with advantage. As a rule, a single application checks the paroxysm, but some patients find it necessary to repeat the application several times a day. We learn from a communication recently received from Mr. Watson that he has adopted this mode of treatment in a large number of cases, and with uniform success.

As an example of the rapidity with which cocaine acts in cutting short hay-fever and paroxysmal sneezing, we may mention that at a public dinner last summer we sat next to an American gentlemen, well known on both sides of the Atlantic, whose misfortune it was to have to deliver the speech of the evening. The table was covered with flowers, and our friend, who was a hay-asthmatic, soon commenced sneezing, and rapidly exhausted the resources not only of his pocket-handkerchief, but of the spare table napkins. He could hardly breathe, and certainly for the moment he was no orator. It suddenly dawned upon us that we had a tube of cocaine tabloids in our waistcoat pocket. We offered them to him, and, instantly recognizing their use, he plunged them up his nostrils. Almost immediately relief was obtained, and a few minutes later he was on his legs, speaking with that fluent ease and distinctness for which he is justly renowned.

We have prescribed these cocaine tabloids for many actors and reciters who have been subject to sneezing, and they have rarely failed to effect the desired object. We prefer them to bougies and other gelatine preparations of cocaine. In one case the cocaine, topically applied, arrested the sneezing and irritability of the nose, but induced an attack of asthma.

Pungent inhalations of all kinds are useful in cutting short the attacks of sneezing, and apparently they act by substituting for the pathological irritation another and an artificial form which is powerless to excite the paroxysm. Strong ammonia, carbolic

acid, camphor, and iodine may all be employed for the purpose. The pungent smelling salts sold in the shops often answer admirably, but the palm, we think, must be given to iodine. We usually order it in the form of the liniment, instructing the patient to carry a small bottle in his pocket, taking care, of course, that it does not escape, and to take a sniff or two on the onset of the symptoms. We have notes of many cases in which this simple method of treatment has proved wonderfully efficacious. Pure terebene, pinol, and eucalyptine are useful to inhale, and are preferred by some patients. A few drops of chloroform placed in the palm of the hand and inhaled during the attack will sometimes cut it short. In some cases of hay-fever we have found inhalations of creasote useful. The best strength is ten drops in a pint of hot water, the steam being inhaled for a few minutes. A popular remedy is essence of camphor, a saturated solution in alcohol, two or three drops being taken on sugar every ten minutes. Inhalations of camphor are also useful.

Tobacco smoking will often answer admirably, though in some cases we have known it fail. During the hay-asthma season, from about the middle of May to the end of July, the sufferer should regularly smoke a good cigar as a preventive the last thing on going to bed, or, better still, when he is in bed. The sedative influence of the cigar will often ensure a good night's rest, but the powerful depressive action of strong tobacco may be necessary to cut short the paroxysm when once established. Some patients prefer the Indian tobacco, lobelia inflata, to the ordinary cigar or pipe. Nitre papers burnt in the bedroom may prove useful, but those commonly prepared are too weak to do much good. We employ a nitre paper consisting of six thicknesses of blotting paper steeped in a saturated solution of nitrate of potassium and chlorate of potassium. When dry it should be sprinkled with essence of camphor, compound tincture of benzoin, tincture of sumbul, o some preparation of stramonium, and burnt on a tin plate at the bedside. The efficacy of Himrod's powder is so generally recognised as to call for no comment. It, like its congeners, the Green mountain cure, Bliss's cure, and their numerous imitators, probably contains nitre, lobelia, and stramonium. Coffee is not uncommonly employed to cut short attacks of hay-fever, but to be of use it must be black and strong, and should be taken quite at the onset of the paroxysm. It is so valuable a remedy that the hay-asthmatic should never drink it as a beverage, but should reserve it strictly as a medicine. We often prescribe the effervescing citrate of caffeine with advantage.

A nasal douche or spray of sulphate of quinine is said to be useful in hay-fever, but in our hands it has not yielded good results in the treatment of paroxysmal sneezing. Hazeline, an aqueous distillate prepared from the fresh bark of hamamelis virginica is a

capital remedy both for hay-fever due to pollen and simple sneezing. When snuffed up the nostrils it aborts the attacks, and when taken internally in twenty-minim doses three times a day, it lessens the hyperexcitability of the mucous membranes of the nose and respiratory tracts.

Foremost in our second category of remedies, that is to say, those which modify the condition of the mucous membranes, and prevent the occurrence of the attacks, we place the iodides. It matters little, we think, whether the potassium, sodium, or ammonium salt be given. We prescribe it either alone in water or in a mixture flavoured with syrup of Virginian prune. The inhalation of iodine is indicated when there is itching of the nose or of the inner canthus of one or both eyes, sneezing, running at the nose of a clear watery fluid, weeping of the eyes, and severe frontal headache. Our plan is to warm a jug holding about a quart by rinsing it out with boiling water, then partly to fill with hot water, and add from twenty to thirty drops of tincture of iodine. The patient is directed to put his mouth over the jug and inhale the iodised steam, his head and the jug being covered with a large towel. This method will be found in many cases to be very successful.

One of our patients, in whom iodide of potassium and the other iodides produced a very disagreeable prickly sensation in the throat, experienced the same phenomenon after a trial of a preparation called "spirone," and he was convinced that it contained iodine in some form. Mr. Martindale was good enough to analyse it for us in his laboratory, and found that it consisted essentially of a mixture of iodide of potassium and acetone. It was then submitted to Dr. Paul, of the Pharmaceutical Society, who reports:—

"It has a specific gravity of 1029. Nearly half its volume consists of acetone with a little water. It yields, on evaporation, about 24 per cent. of glycerine, and about 2 per cent. of saline residue, which, when incinerated, is found to consist of 1·7 per cent. of iodide of potassium."

It is a somewhat curious coincidence that for some years we have employed with advantage a 2 per cent. aqueous solution of iodide of potassium in the treatment not only of sneezing but of chronic bronchitis and asthma. Our attention was directed to this remedy when making a series of experiments on the value of the ipecacuanha-wine spray in winter cough. We know that iodide of ethyl is useful in asthma, and it is probable that its beneficial effects are due to the iodine which it contains.

Arsenic is useful in many forms of paroxysmal sneezing, but we have found it of little or no value in true hay-fever, where the attacks are excited by pollen. It is indicated when the patient is seized several times a day, usually in the morning soon after rising, with profuse running from the eyes and nose, accom-

panied by frontal headache. The attacks are excited by exposure to cold, by dust, and other causes, and are usually accompanied, or perhaps preceded, by itching at a small spot situated inside one or both nostrils, not far from the orifice. This complaint, unless actively treated, often persists for years. Arsenic is also useful when the attack is excited by food, and lasts for half-an-hour or so after the chief meal of the day. In children who, after a severe attack of bronchitis, catch cold on the slightest provocation, the same method of treatment may be employed, especially when there is much wheezing and embarrassment of breathing. Coryza sometimes precedes the dyspnœa for three or four days, the whole attack lasting a week or more. Sometimes we meet with cases where the patient suffers from asthma for several years, and is then seized with severe attacks of sneezing.

In many cases of sneezing the excitable or susceptible condition of the mucous membrane of the nose is due to the presence of a polypus, or some other similar morbid condition, and then operative procedures afford the best chance of relief. When there is much hypertrophied tissue the electrical cautery, after the application of a strong solution of cocaine or antipyrin as a local anæsthetic, is recommended.

When the attacks are attended with itching or irritation of some particular spot or region, the local application of aconite liniment or aconitia ointment may at once give relief. A lady, aged 22, who was under our care, suffered persistently for some years from sneezing. The fits occurred in the morning, lasted several hours, and were accompanied by considerable pain over the forehead. The sneezing was often so violent as to exhaust her for the greater part of the day. She complained of intense itching, both of the inside and outside of the nose, and also of part of the face, the itching lasting during the whole of the paroxysm of sneezing. Her health had given way, and she was pale and thin. The free application of aconite liniment to the outside of the nose and part of the face, which was the seat of the itching, immediately gave relief, curing both the itching and the sneezing. The attacks of sneezing returned once or twice in a mitigated form, but a fortnight's persistence in the treatment effected a complete cure.—*British Med. Journal*, *June* 23, 1888, *p.* 1329.

33.—SULPHUROUS ACID FUMIGATION IN HOOPING COUGH.

By Frederic E. Manby, F.R.C.S., Wolverhampton.

The known difficulty of giving relief to the little sufferer from hooping cough, except in the most general ways, led me at first to doubt the correctness of the statements made in regard to the above method of treatment in the London Medical Record (Part 140, p. 59, New Series). Moreover, one of the most recent writers (Dr.

W. Squire, in Quain's Dictionary) epitomises our experience of treatment thus: "We have no specific for hooping cough, no drug to check its onset or stop its course;" and again, "Attempts to cut short the disease by inhalations or insufflation of germicides fail."

It was thus with much hesitation that I decided to give the plan a trial—with what result I must crave my readers' indulgence to describe. Dr. Mohn says that the cases he tried the fumigation in "were healed as if by enchantment after one fumigation," and again, that they were "at once cured by the fumigation." I cannot advance such evidence of *immediate cure* as Dr. Mohn has given in the paper cited, but I can most emphatically endorse his statement of the benefit to be derived from the treatment. I applied the method of fumigation by sulphur according to the instructions given.

The method is the following:—The children are in the morning put into clean clothes and removed elsewhere. All their clothes, toys, &c., are brought into their bedroom, and sulphur is burnt upon a few live coals in the middle of the room. The fire is allowed to remain in the room for five hours, and then the windows and doors are thrown open. The child sleeps in the room the same evening. About 25 grammes (a little under an ounce) of sulphur to every cubic metre may be burnt; this is equivalent to rather more than 10 grains per cubic foot. The additional precaution was taken of having the dayroom fumigated in like manner during the night—the children practically lived in an atmosphere of diluted sulphurous acid gas for some days, while in several cases I had the process repeated at the end of a week.

In every instance without exception my observation leads me to look upon the method as a practical cure for hooping cough. There is no doubt about it—mothers and nurses all agree with me that an immediate improvement is effected. Cough is lessened in frequency, expectoration of the thick clogging mucus much facilitated, paroxysms lessened in violence, and sickness after them as a consequence scarcely known. The children pick up quickly, and in no case has the cough lasted in its form of reduced violence more than a fortnight after the treatment commenced; it gradually but surely abates and ceases. I have had no specially severe bronchitic or pneumonic complications to deal with in the twenty or more cases in which I have applied the treatment, but I do not think I should desist if such complications existed.

My opinion must go for what it is worth, but I thoroughly believe that if this method could be at all generally applied throughout the country during, say, six months from any given date, hooping cough would become as rare a disease as the plague. The action of the sulphur must be that of a germicide, and in twenty-five years' experience I have seen nothing like such results from any other kind of treatment.—*Practitioner, Aug.*,1888, *p.* 120.

34.—ON REFLEX INFLUENCES IN THE PRODUCTION OF NASO-PHARYNGEAL CATARRH.

By Albert H. Buck, M.D., Professor of Diseases of the Ear in the College of Physicians and Surgeons, New York.

In the present paper I propose to call attention briefly to those comparatively remote exciting causes of naso-pharyngeal catarrh which act—so far as we are able to-day to explain the mechanism of their action—through the intervention of the vaso-motor fibres of the sympathetic nerve. Of the direct exciting causes of naso-pharyngeal catarrh we know very little. Certain kinds of dust and smoke, the pollen of certain plants, the decomposing secretions of the parts themselves or of adjacent organs, and, to a certain extent, the direct influence of heat, cold, and moisture upon the parts, comprise very nearly the entire list of the direct causes known to us. Of the indirect causes acting through the vaso-motor nerves, the commonest and best known is chilling of the surface of the body. If we might believe certain English and American authorities, affections of the teeth should rank next to chill in order of frequency. Possibly this may be the fact, but it has not fallen to my lot, in actual practice, to see more than a very few cases of which I could say that some dental disturbance was apparently playing the part of a promoter of the naso-pharyngeal catarrh—or of the aural disturbance, if the case in hand were complicated, as it often is, with an affection of the ear. The fact is, that we do not yet possess such trustworthy data in regard to the relative frequency of these indirect causes that we can venture thus to classify them. I will therefore simply enumerate some of those which I have observed in practice.

Irritation of the gastro-intestinal tract is, in not a few cases, a very strong exciting cause of naso-pharyngeal catarrh and of all aural disturbances growing out of such a catarrh. While in most of these cases the evidence of such a relationship is not clear and well defined, it now and then happens that the patient is able, from a habit of close observation, to give the sequence of his symptoms in such a manner as to practically demonstrate the existence of a causative relationship between the gastro-intestinal trouble and that of the naso-pharynx and ear. Thus, for example, in one instance which came under my observation, the patient, who was about forty-five years of age, and had for years been more or less of a sufferer from naso-pharyngeal catarrh with tinnitus aurium and slight impairment of the hearing, and who, more recently, had begun to suffer from feeble digestion, observed that whenever he indulged in certain articles of food he would experience abdominal discomfort, and at the same time a marked exacerbation of his naso-pharyngeal catarrh. So long as the offending substances were in the stomach, he experienced only a

slight sense of discomfort; but after they had left the stomach—that is, in the course of three or four hours after he had eaten—a slightly painful peristaltic movement of the bowels would set in, and simultaneously the secretion from the vault of the pharynx would become unpleasantly active, and the singing in his ears would become troublesome. This state of things would last for an hour, or at the most two hours, and then the abdominal discomfort and the other symptoms named would gradually disappear; or rather, the naso-pharyngeal catarrh and the tinnitus would return to their habitual state of slight and comparatively insignificant activity. These attacks were invariably accompanied by the escape of large quantities of gas from the stomach by eructation, and sometimes by a few qualms of nausea.

This case, it seems to me, affords unmistakable evidence that an irritation of the small intestine may, in the presence of a pre-existing naso-pharyngeal catarrh, excite that affection to greatly increased activity. There are many individuals in whom we have every reason for believing that the gastro-intestinal tract is habitually in a state of greater or less irritation. These persons are usually men between the ages of forty and sixty, and it is a very common experience to find the faucial mucous membrane in such patients red and swollen. Can we entertain any reasonable doubt, in these cases, that we are dealing with a naso-pharyngeal catarrh of reflex origin, and that the underlying disease which claims our chief attention as therapeutists, is the gastro-intestinal affection?

Reflex influences involving the vault of the pharynx and the ear may emanate, I am convinced, from still more remote organs. A lady, about forty years of age, and otherwise in good health, consulted me for the relief of a distressing tinnitus involving both ears. She had experienced the symptoms of a mild naso-pharyngeal catarrh from time to time during a period of many years. The hearing had not been affected and there were times when she was almost entirely free from the tinnitus. Her digestion had always been good. I saw her for short periods at intervals of a few months, and always succeeded in giving her prompt relief by applying a moderately strong silver nitrate solution, with a mop of absorbent cotton, to the vault of the pharynx, on alternate days. There came a time, however, when these applications failed to give the desired relief. The tinnitus became almost unbearable. I then learned from the patient that she had been a sufferer for many years from pain in the pelvic region and back, and that at this particular time she was suffering to a more marked degree than usual. I urged her to consult a specialist in reference to the suspected uterine disease, and she finally but very reluctantly consented to do so. In this way it was ascertained that the fundamental trouble was a retroversion of the uterus, associated with a chronic subacute parametritis, which from time to time, under

the provocation of too much running up and down stairs, &c., became acute. Under proper treatment the parametritis was subdued, the uterus was restored to its proper position and kept there by means of a suitable pessary, and, finally, without any further local treatment of the vault of the pharynx, the tinnitus gradually disappeared altogether. From that time to the present (a period of about one year) the naso-pharyngeal catarrh and the distressing subjective noises have been so slight as to require no further use of the silver solution.

The case which I have just narrated in outline is the only one of the kind that I remember to have seen. However, it has impressed me with the belief that I shall encounter similar cases not so very infrequently hereafter, and that their apparent rarity in the past has probably been due to the fact that I had not given much thought to the probability of such a connection existing between the two diseases, and consequently did not make any effort to ascertain whether any inflammatory action was going on within the pelvic cavity, or not.

The question may suggest itself to some, Are not the reflex influences already referred to competent to act as the direct causes of a naso-pharyngeal catarrh? As will have been remarked, I have spoken of them only as indirect causes, that is, as factors which are competent to aggravate and heighten a pre-existing but perhaps more or less latent catarrhal disease. I see no fundamental reason, however, why these reflex influences may not also, in certain cases, play the part of direct exciting causes; but I think it would be almost impossible to demonstrate the correctness of this belief, and therefore I prefer to adopt the view which assigns to them a less independent rôle.—*Medical Record, Aug.* 1888, *p.* 176.

DISEASES OF THE ORGANS OF DIGESTION.

35.—ON THE PATHOLOGY OF THE CÆCUM AND APPENDIX.

By Joseph Ransohoff, M.D., F.R.C.S., Cincinnati.

There are most excellent reasons, anatomical and clinical, for separating inflammations here present into those of the cæcum and those of the appendix; each to be subdivided into those of the part itself and those of the peritoneal investment. There is, it appears, a rational basis for the use of the terms, typhlitis to indicate inflammation of the cæcum, perityphlitis to indicate a like condition of its serous coat. Appendicitis, following in the path of With and Fitz, should be reserved for inflammation of the appendix, and peri-appendicitis, or appendicular peritonitis for that of its peritoneum.

Of the varieties of cæcal and appendicular inflammation, those of the appendix are of far more frequent occurrence in grave cases

than those of the cæcum proper. Yet it is equally certain that typhlitis is far from uncommon, although mortuary records would fail to show it. In the investigations of the anatomy of this part I was struck by the frequency with which evidences of chronic catarrh, in the form of patches of indolent venous congestion, pigment spots and superficial abrasions were encountered in the cæcum. In all such instances the scybalous contents were covered with a layer of opaque mucus. This catarrhal condition is by no means confined to those who are habitually constipated, but is often encountered in the young, in whom the dependent condition of the cæcum makes it a favourite seat for the retention of indigestible food. From this condition there is only a step, though a long one, to the typhlitis stercoralis of German writers, which, though doubtless of frequent occurrence, generally ends in recovery, and is, therefore, not often anatomically demonstrable. Given, however, a continuance of the cause, which, in contradistinction to that of peri-appendicitis, is rarely a foreign body and the erosion becomes an ulcer. If the pressure effect of a hard, fecal mass be the cause, the ulcer would probably be seated in the posterior wall of the cæcum, where, therefore, the localized peritonitis or intra-peritoneal abscess would be most likely to result. That such peritonitis may develop in any portion of the cæcal superficies is shewn by the multiplicity of directions taken by perityphlitic abscesses in different cases. Whether the abscess presents itself above or below Poupart's ligament the superficial position of the cæcum generally causes it to appear early. The only exception hereto is that in which the pus travels towards the loins, under which circumstances the pericæcal trouble is probably secondary to a perirenal, spinal or iliac abscess. The perforations which occur in the cæcum are not often produced by foreign bodies, although a number of such cases have been recorded. They are not infrequently produced by tuberculosis, although here, as in the case of foreign bodies, the appendix is preferably the part affected. The ulceration may, however, exist in the cæcum alone, the appendix remaining unaffected.

It is evident that the views entertained from time to time concerning the relative importance, pathologically, of the cæcum and the appendix have vibrated like a pendulum. Dupuytren and his followers looked on the cæcum as the part primarily at fault. Burne located in the same part, and Habershon followed in the same direction. In the more recent contributions of Kraussold and Biermer the appendix has been given greater prominence than ever before. Whereas, formerly, as Kraussold puts it, the appendix was treated in a stepmotherly way, there is danger now that the cæcum will share this fate. While in the acuter and more fatal forms of perforative inflammation of this region the appendix doubtless plays the more important rôle, of 25 cases

recently collected by me only one being of the cæcum, it is unreasonable to ascribe every perforation to it from clinical evidence alone. Thus so admirable an observer as Fenwick mentions a case in which an abscess of the thigh was opened and discharged fæces. In another instance an abscess terminated in a chronic vaginal fistula. Since both cases recovered what evidence is there that in either the appendix was primarily at fault. Fenwick, with others, rightly claims that the occlusion of the orifice of the appendix is a common cause of perforation. How can we logically, in such a case, account for the continuance of a copiously discharging fæcal fistula. It appears to me much more probable that cases of this nature are primarily of cæcal origin. On the other hand, the position of the appendix, the narrowness and tortuousness of its canal, the presence of a valve, the tendency of fæcal or foreign matter to be retained in it and the readiness with which it is displaced, all serve to make the appendix the principal seat of grave pericæcal inflammation. It is not remarkable therefore that autopsies will often reveal pathological conditions of the appendix where death has resulted from other causes. Züngel, Toft, and Kraussold have called particular attention to this fact. The latter writer even claims that between the ages of 20 and 70 every third body will show traces of disease of the appendix, and that particularly in tubercular subjects it is often converted into a tubercular ulcer. In over sixty examinations recently made I found reasons for believing that in this section of the country, at least, the proportions quoted are entirely too large. In only eight were there either abnormal adhesions, unusually hard fæcal masses, fibrous occlusion, or cicatrices on the surface. In only one instance was a foreign body (the stem of a raisin) encountered. The discrepancy between these observations and those of the authors alluded to may be accounted for by the greater indulgence in animal diet by our people. Speck calls attention to the greater frequency of the diseases of this region, in Siberia, where the food, which is mostly vegetable, contains a large amount of indigestible residue.

The history of appendicitis is for the most part like that of inflammations in other narrow mucous canals with their catarrhal, ulcerative and cicatricial phases. Recurring like typhlitis and usually occurring like it about the period of adolescence, appendicitis is doubtless in many cases but the extension of disease from the cæcum. The catarrhal thickening of Gerlach's valve or permanent stenosis of the appendicular orifice may cause the retention of excrement or mucus, either of which may form the nucleus of a concrement. This or a foreign body has been shown by Matterstock, Fenwick and Fitz to be the cause of perforation in three-fifths of all cases. In other instances the appendix degenerates into a retention-cyst. Whatever the condition of the

appendix, if at all grave, the peritoneum is sooner or later implicated. The favourable position of the appendix for forming adhesions and localizing abscesses without doubt often prevents a general peritonitis. On the other hand, the rupture of such adhesions or residuary abscesses may fatally infect the general peritoneum. Not infrequently, where there is no foreign body, the appendix degenerates into a firm fibrous cord, buried in adhesions and often difficult to find. These are the cases in which the progress of the appendicitis is made manifest from time to time by clinical phenomena, and in which the appendix, as the seat of recurring disease and a constant threat to the individual, may, as was recently done, be justifiably excised. In a very fair proportion of cases (seven out of twenty-five), no foreign body or fæcal mass is found, nor can the rupture of a cyst or tubercular ulceration account for the perforation peritonitis. In such instances the distal inch or two of the appendix is often found gangrenous, either adherent to the appendicular base or as a slough-free in a pelvic abscess. This condition, it appears to me, is brought about by the displacement of the appendix and consequent torsion of its vessels. Since the distal half inch or inch has no blood supply independent of the base, torsion of the latter would primarily involve the tip. A number of facts support this view. In the first instance, the appendix is not a pelvic organ under ordinary conditions. In perforative appendicitis of rapid development the abscess is at least often intra-pelvic. In the second place, the exciting cause of perforating appendicitis is in one-fifth of the cases a violence, such as might result from blows on the abdomen, excessive exercise, lifting or vomiting. In the third place, the gangrene is usually developed beyond the point of perforation. The latter is usually within one or two inches of the cæcal end, the gangrene, however, involves the tip.

The subsequent pathological history of perforative appendicitis is outlined by the rapidity of the effusion and the facility or want of facility with which adhesions are formed. In many instances the contents of the appendix are thrown into the general peritoneal cavity, and death ensues with the rapidity and certainty pertaining to intestinal ruptures from other causes, and before adhesions form. In many cases, however, gradual drainage prepares the way for a limitation of the resulting abscess between mesentery and mesenteriolum, small intestine within and cæcum without, omentum in front and behind all, the reflections of the peritoneum over the psoas and eventually over the iliac fascia. Is it not possible, therefore, that, except in foudroyante cases, the danger of general peritonitis is somewhat over-estimated?

When an abscess forms, what more probable than its more or less rapid course towards the surface, above or below Poupart's ligament, towards the hypogastrium? Or that in other instances burrowing through the iliac fascia it should tend towards the loin;

or opening into some hollow viscus like the cæcum, rectum or vagina eventually be recovered from?

It is beyond the scope of the task assigned me to dwell on the diagnosis and treatment of the conditions considered. Were I, in conclusion, permitted a few aphorisms they would be: "Place not your faith in exploratory punctures; operate early and by lateral laparotomy when the symptoms are of the gravest and a tumour is not forthcoming; reserving the incision parallel to Poupart's ligament for abscesses that are palpable."—*Journal of American Med. Association, July* 14, 1888, *p.* 44.

36.—ON PHANTOM TUMOURS OF THE ABDOMEN.

By William Pepper, M.D., Professor of Clinical Medicine in the University of Pennsylvania.

Phantom tumours may present themselves in any part of the abdominal cavity. They vary in size and shape, but they rarely exceed a man's fist in size, and are usually of an oval or rounded shape. They may be as large as a child's head. The epigastric region is their favourite situation. Their peculiarities are that they are very variable in their appearance; a tumour may be found at the first examination, but on the succeeding day it may have entirely disappeared, and perhaps during the examination it will again become evident. These tumours come and go without apparent reason. When present, they often closely simulate actual growths, being quite resistant to pressure and usually somewhat sensitive. On percussion they are sometimes resonant; at other times they yield but little resonance, the note indicating that there is a considerable amount of solid matter between the finger and any gas in the intestine. These tumours are for the most part somewhat movable. They appear in persons of a neurotic temperament and are associated with other phenomena of disturbed innervation.

Phantom tumours are dependent upon one of two things: either upon irregular muscular contractions in the walls of the abdomen, with spasm of certain groups of fibres and the formation of knots in the muscles, or else upon spasmodic contraction of some part of the gastro-intestinal canal, with the imprisonment of gas and the formation of a rounded tumour, with the walls of the intestine in a state of spasm and with the abdominal muscles grasping it more or less spasmodically. This accumulation of gas may take place in the colon, in the small intestine, or even in a portion of the stomach. These bodies will often simulate intra-abdominal growths of various kinds. Their proper nature is to be recognized by a consideration of the general health, the peculiar neurotic state of the system, the variability as regards the presence of the tumour and its position, the absence of symptoms of obstruction of the stomach or intestines, the results of careful palpation, the fact that

the tumour will sometimes disappear under the use of gentle manipulations and suddenly reappear when the surface is irritated, and the fact that the tumour entirely disappears when the patient is etherized.

Phantom tumours are not to be confounded with the movable abdominal tumours which come and go, and which are actual tumours, such, for instance, as a floating spleen, a floating kidney, or a fibroid tumour of the uterus with a long pedicle allowing it to appear in different parts of the abdomen. All these floating tumours disappear at times to re-appear when the patient assumes a different posture or when the relations of the gastro-intestinal canal are altered. These are to be distinguished by the slight character of the general symptoms, by the absence, in the case of the kidney and spleen, of the organ from its normal position as revealed by percussion, and by the fact that they admit of careful palpation and can be grasped by the hand, and, if the patient is etherized, can be examined minutely so as to remove every possibility of doubt. Moreover, in the case of a uterine fibroid, it can often be pressed down so as to admit of bimanual examination with one hand in the vagina and the other on the abdomen. A consideration of these facts, with the long duration of the tumour and the previous history which points to conditions that would favour the displacement of an organ, will enable you to decide that there is a true abdominal tumour.

I should have mentioned before, that, in the distinction between phantom tumours and movable tumours of the abdomen, nothing requires more careful consideration than the possibility of fæcal accumulation. This must never be absent from our minds whenever we approach a case of abdominal disease, for fæcal accumulation is a factor in a vast number of instances of abdominal trouble. When a mass is found in the abdominal cavity, no matter what its position, size, shape, or consistence, the possibility of its being a fæcal accumulation is never to be forgotten. This is especially true if the mass is oval in shape, somewhat movable, not very painful, and not associated with evidences of marked derangement of the general health.

The treatment should consist in the regulation of the diet, attention to the bowels, and the use of remedies to allay the nervous condition of the stomach and the hyperæsthesia of the abdomen. For this purpose I order four or five grains of bromide of sodium and a drop of dilute hydrocyanic acid to be taken after meals. The patient should also take with the meals a little pepsin. In order to draw the attention from the stomach, it is, I think, well to apply to the epigastric region some strong counter-irritant. I should have tincture of iodine repeatedly applied over this part of the abdomen. Under this treatment there should be decided improvement.—*N. Y. Med. Journal, Sept.* 15, 1888, *p.* 281.

37.—ON THE USE OF CODEINE TO RELIEVE PAIN IN ABDOMINAL DISEASE.

By T. Lauder Brunton, M.D., F.R.S., Lecturer on Materia Med. and Therapeutics at St. Bartholomew's Hospital, London.

The relief of pain may be classed next to the saving of life, and must perhaps sometimes be even put before it as the chief duty of the physician. As yet no drug has taken the place of opium as a general analgesic, though the use of crude opium is now frequently replaced by the subcutaneous injection of morphine, the most active of the alkaloids it contains. In abdominal pain many practitioners still have a preference for the use of opium, as compared with that of morphine, and this very preference is sufficient to make one ask whether it may not have some foundation in the presence of other active principles along with morphine in opium, and if so, to inquire which active principle it is that helps to allay pain.

Thanks to its recommendation by Dr. Pavy, codeine is largely used in the treatment of cases of diabetes, but at present its use is almost confined to this disease, and it is rarely employed for other purposes, excepting perhaps that of soothing cough or irritation in the throat.

Codeine was discovered by Robiquet in 1832, and two years afterwards its action was tested upon himself by Gregory, who found that, instead of causing sleep, it rather caused excitement, and had also a slight laxative tendency. It was applied therapeutically by Barbier in 1834, who noticed that it seemed to have a special action upon the sympathetic system, and found that it was of great use in lessening pain in persons presenting symptoms of irritation in the solar plexus. Such symptoms are pain in the epigastrium, spreading to the sides and back, and associated with a feeling of burning, anxiety, depression, more or less tenderness of the epigastrium, with sighing, lack of energy, and tendency to faint. Occasionally the pain may cause symptoms of collapse, palpitation, and vomiting. In such cases Barbier gave a grain of codeine in a tablespoonful of syrup, and repeated it if necessary in one or two hours with the best results. From his observations he came to the conclusion that codeine acts chiefly upon the sympathetic nervous system, and especially upon that part of it which is in the region of the stomach; that it is a most useful remedy in abdominal neuroses depending upon disordered condition of the nervous plexus in the abdomen, and especially those in the gastric region; that it does not disorder the digestion, and rather aids than interferes with the action of the bowels. He found also that it produced sleep with tolerable certainty, and that this sleep was never followed by heaviness in the head or stupidity, but, on the contrary, persons who had taken it felt happy, and were disposed to be cheerful on awaking. About twenty years later, in 1856,

Robiquet's son undertook some observations on the action of the drug which his father had discovered. The results he obtained, however, did not quite accord with those of Gregory or of Barbier, and it is possible that the discrepancies may have been due to more or less impurity in the drug employed. In large doses he found that it caused an unrefreshing sleep, followed by a period of confusion of thought; occasionally nausea and vomiting were produced. In small doses he found it of great service in hypochondriasis, relieving nervousness, irritability, and all the discomforts from which patients affected with this disorder are apt to suffer.

Shortly afterwards Berthé made a much more full and complete investigation of the physiological action of the alkaloid. Amongst other things, he confirmed Barbier's observation that it had a specific action upon the sympathetic, and found that it lessened the irritability of the intestine to such an extent that a dog which had received 15 grains of arsenic along with 7½ grains of codeine exhibited neither vomiting nor purging, nor any other symptom excepting drowsiness, while another dog which had received a similar dose of arsenic without the codeine began to suffer in the course of an hour from severe pain, vomiting, and bloody diarrhœa, and, indeed, presented well-marked symptoms of arsenical poisoning, although it ultimately recovered. These experiments suggested the idea to me that codeine was likely to be of service inabdominal pain, and I proceeded to try it, with very satisfactory results. The class of cases in which I have used it is, I think, somewhat different from those in which it has previously been recommended, because while Barbier, Aran, and others have chiefly employed it in gastralgia and painful disorders of the stomach, I have used it chiefly in pain affecting the intestine and lower part of the abdomen. The kinds of cases in which I have used it have been very varied. As examples, I may shortly describe one or two. In one case which I saw with Dr. Eccles, there was high temperature, intense pain in the right iliac fossa, with considerable swelling, so that there could be little doubt that there was inflammation around the cæcum, although examination after the acute symptoms had subsided showed that there was also pelvic cellulitis. In this case one grain of codeine, given in the form of a pill, relieved the pain at once, and repetition of the dose whenever the pain began to return prevented its becoming at all severe.

In another case, seen with Dr. Philpot, of Croydon, a lady, aged 50, had pneumonia of the right base, a greatly dilated heart, with very irregular action, pulse so rapid and weak that it could hardly be counted, and pain over the epigastrium and spreading out from it. She was slightly jaundiced, and a tumour was felt in the right lateral abdominal region, which descended with respiration, but was partly covered by intestine, and could be moved from side

to side, so that it seemed to be renal rather than hepatic. As no post-mortem examination was obtained, the exact diagnosis could not be established, but the administration of codeine in half-grain doses relieved the pain, as Dr. Philpot said, "as if by magic."

In another case, seen with Dr. Pardington at Tunbridge Wells, there was pain in the abdomen depending upon a mass of impacted fæces in the transverse colon. In this case codeine seemed to be especially indicated, as one wished to relieve the pain without interfering with the action of the bowels. In grain doses codeine relieved the pain, and the use of copious enemata, aided by washing out the stomach, cleared away the impacted mass which had given rise to the disturbance. I have tried codeine in cases of long-continued abdominal pain for which no definite cause could be assigned, as no tumour could be felt, and the functional disturbance did not seem sufficient to warrant a diagnosis of malignant disease. I have tried it in cancer of the liver and pancreas with success in relieving pain, and also in numerous cases where the age of the patient, the presence of diarrhœa, tenderness on pressure, and visible peristaltic movements, and thickening of the gut, easily perceptible on palpation, led to the diagnosis of malignant disease in the intestine, although inability to obtain a post-mortem examination prevented the confirmation of the diagnosis. In such cases I generally begin with half-a-grain, in the form of a pill made up with extract of gentian, three times a day; and if this is insufficient to control the pain I increase the dose to a grain, and give it as frequently as seems necessary. As a rule, I find that it does not produce drowsiness, nor has it interfered with the digestive functions.

To sum up, the results I have obtained from the administration of codeine have satisfied me that it has a powerful action in allaying abdominal pain, and it can be pushed to a much greater extent than morphine without causing drowsiness or interfering with the respiration or with the action of the bowels. It is, therefore, specially indicated in such a case as Dr. Philpot's, which I have already mentioned, where the dilated heart and consolidated lung tended to make one afraid of morphine. Codeine is also specially indicated in a case like Dr. Pardington's, where one wished to relieve the pain without interfering with the action of the bowels. On the other hand, in cases where there has been much diarrhœa, as in some cases of malignant disease of the colon or rectum, the absence of any tendency to lessen peristaltic movement is rather a disadvantage to codeine as compared with morphine or opium.

I have found that in cases of long-continued enteralgia without organic disease, it has continued to relieve pain for months together, without the dose being increased beyond one grain three times a day, and I found the same to be the case where the presence of a

tumour, in addition to other symptoms, had led to the diagnosis of malignant disease.

It is interesting to follow the vicissitudes of a drug, and to notice how its use extends or diminishes until at last it finds its right place and maintains it. Thus digitalis, while mentioned in the London Pharmacopœia of 1721, was excluded from that of 1746. It again appeared in 1788, and since then it has held its place. Possibly codeine, after falling into almost complete disuse as an analgesic for many years, may again regain a more or less important place amongst the remedies which enable us to relieve pain.—*British Med. Journal, June* 9, 1888, *p.* 1213.

38.—ON MEMBRANOUS ENTERITIS AND ITS TREATMENT.

By William A. Edwards, M.D., Instructor in Clinical Medicine in the University of Pennsylvania.

[Dr. Edwards publishes an exhaustive paper dealing with the well-recognised, but rather obscure condition, in which, without any symptoms of importance, Mucous Casts are passed either at intervals or continuously from the bowels. The interest of the paper is much enhanced by the record of the post-mortem appearances in a case under Dr. Osler's care in the Philadelphia Hospital. A man, aged seventy-one years, died of purulent meningitis and chronic nephritis. At the autopsy, in addition to the fatal lesions, the ascending colon presented membranous casts and flakes closely adherent, yellowish white in colour; small pieces of semi-translucent membrane, and some solid roundish cords which ran into a clear colourless jelly which was almost structureless, and which, when placed in water, became almost invisible. The gut was otherwise absolutely normal, there being no evidence of past or present colitis.]

Cases of membranous enteritis are generally seen in hysterical women, or hypochondriacal men, a fact well recognised by an early writer, who styled the disease "hypochondriasis pituitosa." We shall most usually find the disease occurring apparently as a concomitant or sequela of either disease of the genital or intestinal tract, or of the nervous system.

The passage of the casts is usually paroxysmal, accompanied by abdominal pain, tenesmus, and nervous disturbances, and is preceded or followed by digestive troubles. Abdominal tenderness almost always exists, and is generally relieved by the passage of the membranes; blood may be present in the discharges; at this time the bladder will usually present some symptoms, more particularly should the disease occur in a female, when manifestations of uterine disorder will be almost invariably present. Patients who are the subjects of membranous enteritis, while they do not lose the normal contour of the body, still present some evidences

of malnutrition; they are apt to have eruptions of furuncles and carbuncles, sore mouth or herpes of the genitals, and an irritable nervous system. Emaciation is rarely a marked symptom; it is indeed worth noting that this almost entire lack of emaciation persists throughout the cases, notwithstanding the amount of matter passed.

The number of paroxysms and the duration of the attacks are very variable, and may be preceded by certain premonitory symptoms, as Da Costa has observed a patient who was able, with absolute certainty, to foretell an attack by a sense of chilliness, blueness of the nails, and tingling or pain at the finger-tips. Patients may suffer but one attack in a year, one a month, or, on the other hand, the paroxysms may be continuous, as in our first case; the duration of these attacks is also very irregular, they have been reported as short as twenty-four hours, and as long as two weeks; the difficulty in precisely limiting the attack will be appreciated when we remember that in the more chronic cases there is an almost constant sequence of symptoms; we must also bear in mind that the patients are usually dyspeptic, and suffer more or less from constipation and abdominal distress, which sometimes amounts to severe pain referred to the umbilical region; indeed this train of symptoms usually precedes for some time the expulsion of the membranes.

Membranes are not found in each stool during a paroxysm, as a rule, but a single accumulation is generally passed accompanied by pain and tenesmus—indeed, some cases only discharge the membrane about once a week; on the other hand, patients may have ten or a dozen membranous stools in twenty-four hours. Pain, tenderness, and tenesmus are complained of in varying degrees by different patients; the most usual manifestation is abdominal pain, which may be simply a sense of uneasiness, or severe agonizing pain which is generally relieved by the passage of the membrane; tenderness may exist over the entire abdomen or be localized and only developed by firm pressure. Hemorrhoids, prolapse of the rectum, diarrhœa, jaundice, extreme thirst, coated, anæmic, and fissured tongue, aphthous ulcer of the mouth, and tonsillar phagedæna have all been noted in the symptomatology of the disease. The nervous system presents many and varied manifestations. To some of these neuroses we have already called attention, particularly the hysterical derangements, which are the most frequent of all the functional disturbances; this applies both to males and females affected by membranous enteritis. The following symptoms have been noted: neuralgia, hyperæsthesia, anæsthesia, irregular muscular tremors, paresis, hysterical tetanus, coma, and convulsions. Transient defects in vision, tinnitus aurium, and disordered sense of taste are all among the recorded symptoms. Cerebral symptoms have occasionally appeared, for

instance amnesic aphasia has been recorded; mental depression, faulty memory, hypochondriasis, and melancholia may be exhibited for a time, to be followed possibly by increased mental activity.

The association of this disease with uterine disorders has already been noted, as has also the fact that a simultaneous discharge may take place from the bladder and the bowel; cystitis, strangury, and frequent micturition may cause bitter complaint. The urine does not present any alteration that can be associated with the disease under consideration. The temperature is rarely above normal, except possibly during the height of a paroxysm which is accompanied by much pain; it may, however, be affected by an intercurrent disease, as phthisis.

The casts are for the most part made up of opaque, white solid masses, rounded or flattened, and small flocculent pieces of semi-translucent membrane; the membranes are delicate and are handled only with the greatest difficulty, out of water. Under a two-inch objective their surface was seen to be composed of opaque and translucent parts, the former apparent as rounded ridges marking off the latter into regularly arranged hexagonal or polygonal crypts. Under a higher power these crypts are still visible, although much less defined. These appearances are best seen in the small flakes of membrane, less distinctly in the larger masses, and not at all in the finer networks that are sometimes passed. These masses appear to be due to the formation of mucous and epithelial matter either upon the surface of or in contact with some follicular mucous membrane. On comparison of these membranes which are moulded by the gut with the healthy mucous membrane, certain differences are at once apparent; the mouths of the pseudo-follicles on the surface of the cast are much larger than those in the normal intestine, they approach closer to each other and may run one into the other; the cells present in the membrane have no definite arrangement, and are not placed upon a basement membrane, which is entirely absent in the mucous formations. The cells have undergone a fatty and disintegrating process.

Da Costa is of the opinion that the affection is not originally an inflammation, but considers the inflammatory element as the result rather than the cause. This observer would attribute the true etiology to the nerves presiding over nutrition, considering the disease as a manifestation of disordered nervous supply, which may be either general or local. Clark held that the membranes were not the product of inflammatory action because they contained no fibrin, a view not tenable at the present day, because we know that fibrin is not an essential component of an exudate. Our own views are in accord with the general consensus of opinion that if inflammation is present at all it is in a very mild form. The colon seems to be generally the selective site of the disease; this, however, is not always the case, as the small intestine may be invaded, either

in conjunction with the colonic deposit or entirely independent of it. Young adult females, or those in the middle period of life, seem to offer, as far as age and sex are concerned, the most favorable subjects.

Upon referring to the literature of the subject, one is at once struck with the extreme paucity of post-mortem records of the disease, and, if we exclude all cases of croupous or diphtheritic deposit, the number becomes small indeed. In view of the meagre post-mortem literature of the subject, how interesting do the records of our cases become. Here the membranous deposit was confined to the colon entirely, and was extremely adherent to the gut, giving place to a colorless, structureless jelly, which was handled only with the greatest difficulty.

The prognosis, in relation to cure, is essentially bad; most cases run a prolonged and tedious course, in many extending over the largest part of their adult life; as, for example, the patient of Gross, in whom the disease lasted nineteen years, and Da Costa's case of twenty years' duration; on the other hand, the disease, of itself uncomplicated, rarely proves fatal, the recorded causes of death being totally independent of the membranous affection.

Treatment.—It is during the remissions or intermissions that we can hope to do more for our patient's permanent good than during an actual attack; it is at this time that diet, regimen, and hygiene are indeed the sheet anchors. A careful supervision must be had of the patient's daily life, all sources of irritation are to be removed, as hemorrhoids or uterine disease. Easily digested or even predigested food should be supplied, and care should be taken that undigested particles of food are not irritating the intestinal canal. As constipation usually exists, sometimes to a most stubborn degree, mild saline laxatives are usually most efficacious, or enemata may be resorted to. Exercise for those who can stand it is of paramount importance; this, if possible, should be out of doors. Unfortunately, all of our cases will be unable to avail themselves of a course of treatment at the springs, but as there is no doubt that most of the natural mineral waters preserve their value for a long time, we can put patients through a thorough course at their own homes with the additional advantage of having the case under our own supervision.

During the acuteness of an attack opium will often be found necessary to afford relief, and possibly to check excessive secretion or hemorrhage. Belladonna in the form of the extract, Dover's powder, subnitrate and subcarbonate of bismuth, together with local counter-irritation, all tend to abort the paroxysm, or, at least, to shorten its duration. The following remedies have been suggested: arsenic, copaiba, bromide of potassium, nitromuriatic acid, henbane, vegetable infusions, prolonged counter-irritation, electricity, turpentine, iron, cod-liver oil, oxide or nitrate of silver

by mouth or by high injections, chloride of ammonium, sulphate of zinc, bichloride of mercury, chlorate of potassium, oxide of zinc, blisters, warm water enemata, nux vomica, ergot.—*American Journal of Med. Science, April* 1888, *p.* 330.

39.—ON THE DIETETIC TREATMENT OF THE SUMMER DIARRHŒA OF INFANTS.

By Arthur V. Meigs, M.D., Phys. to the Pennsylvania Hospital.

When called upon to treat a case of any form of summer diarrhœa, the first question to be asked is—What food has the infant been taking? If it has been nursed, we should be careful in making any radical change, and should only do so if there is positive ground for believing that the attack is the result of some fault in the milk and not of the hygienic or atmospheric surroundings, other than those connected with the food. As yet, I am quite unable to bring myself to believe that, even in cases of acute cholera infantum, it is good practice to take away from the infant the milk of its mother, if she is a healthy woman and the child has previously thriven upon it. Therefore, as routine practice, and when there is no direct reason to suspect the milk of the nurse, I should continue to have the child suckled for its main nourishment.

As adjuvants, and very important ones, the use of water and stimulants, and perhaps some supplementary food, may be necessary. The administration of water is very useful, for often the child frets to be nursed frequently because it is thirsty, and thereby gets too much food and overtaxes its already greatly irritated stomach; whereas, if water is given, the system obtains what it really needs and nothing more; its systematic administration, therefore, should always be directed in cases of choleraic diarrhœa. In speaking of the use of stimulants, it may be thought that I am departing somewhat from my subject and trespassing upon the ground of the therapeutic management of the disease, but to me it has always seemed that stimulation in these cases is more nearly allied to dietetics than therapeutics. Such being my view, it may, perhaps, be permitted to me to say that I look upon stimulation as of the utmost importance in the severe forms of diarrhœa, and that it is well in such cases to give a teaspoonful of good brandy or whisky in a tumblerful of water, three or four times a day (a young baby cannot often be induced to take more than this quantity in twenty-four hours, nor would it be well, except in cases of very unusual severity, to give more), or to give thirty drops in sweetened water every two hours, as may be judged best, according to the stage of the disease or indications in the individual case dealt with. In regard to the administration of other food beside that of the milk of the mother, it must first, as already said, be determined whether there is reason or not to believe that the latter is in any

faulty. If the milk of the mother is decided to be faulty, and has, therefore, been partly or wholly the cause of the attack, the nursing must at once be stopped and the infant fed artificially in the way that will presently be described under the head of ordinary dietetic treatment of the disease for hand-fed infants. On the other hand, even when the mother's milk is, for every reason, believed to be good and to have been in no way the cause of the illness, it will often be found of advantage to give two or three times a day half an ounce of raw beef juice with a pinch of salt in it; or, again, wine whey will often be retained by an irritable stomach, and one or two ounces given two or three times a day will be found to aid in the cure.

The great cardinal principle to be remembered under all circumstances, in using cow's milk for infants, is, that it contains a much larger percentage, about three times as much, casein as does human milk, and that it must, therefore, always be diluted. The word casein is used advisedly, for it is an old term and quite as good a one by which to express the various nitrogenised principles contained in milk as any one of the newer names. Where cow's milk is diluted the amount of fatty material is reduced to less than that contained in human milk, and, therefore, something must be done to increase the quantity of this constituent, which is easily effected by the use of cream. The sugar in undiluted cow's milk even is less in amount than that in human; sugar, therefore, must be added. Lastly, and a matter of great importance, cow's milk is acid, while human milk is alkaline, and this difference should be removed. The addition of lime water is the best known means of effecting this end.

It has been my habit in cases of diarrhœa, as well as for infants in health, to depend upon milk-foods mainly (it goes without saying, that in all instances the milk must be absolutely untainted when given to the child). One quart of milk is placed in a vessel, a tall narrow pitcher is best, and after standing for three hours the upper pint is slowly poured off. This contains the greater part of the fat (cream), and when the child is to be fed there should be mixed together three ounces of this cream, two ounces of lime water, and three ounces of sugar water, which must be made in the proportion of eighteen drachms of milk sugar to a pint of water. This makes eight ounces of food, which, of course, is much too large an amount for a young infant or one that is ill. If, therefore, the infant is young, only two to four ounces will be needed at each feeding, and only that quantity should be prepared, the same proportions, however, being observed and the measure used a tablespoon or dessertspoon, as the case may be. The directions given are those for the feeding of a healthy infant between two weeks and six to nine months of age, and are mentioned only to serve as a basis for what should be given those suffering with summer diarrhœa.

The food described, serves as the basis upon which I rest my method for dietetic treatment of the disease, and with it as a base I vary the food in many different ways to meet the needs of different cases. Of the four things mentioned as necessary to make cow's milk a fit food for infants—to dilute, and add cream, sugar and lime-water, the least essential probably is the use of milk sugar. In cases of diarrhœa, it occasionally becomes advisable to use cane sugar, and if this is done one-third less should be used than the amount recommended of milk sugar. An excellent food for children of six months old or more, and one which has been largely and very successfully used at the Children's Hospital in cases of summer complaint, is that which was recommended by the late Dr. J. Forsyth Meigs: equal parts of milk, cream, lime water and arrowroot water (the last to be made of a teaspooful of arrowroot flour to one pint of water), and a small quantity of cane sugar; the amount of this to be given and the frequency of the feeding to be such as the individual case requires. The addition of some starchy material or dextrin is of great advantage in many cases, whatever may be the mode of its action, whether mechanical in separating the particles of the milk, or local upon the mucous surface of the bowels, or if its absorption and assimilation has a beneficial effect. One of the best is arrowroot, and the old flour ball, made by boiling common wheat flour in a bag for many hours until it becomes hard, and then grating it, is excellent. Barley, prepared as has been recommended by Dr. Jacobi, may be found exceedingly useful. Of all the baby foods that are manufactured, the only one that has given me such results as to encourage me to persevere in its use for any great length of time and to recommend it extensively is Mellin's Food. This has in many cases proved most useful, and should be given in the proportion of a teaspoonful to four ounces of whatever milk food is being used. It has never seemed to me necessary to dissolve it separately in hot water, and I have generally had it added directly to the milk when warm, for it is readily soluble.

It is very important, in treating this disease, that precise directions be given with regard to how often the infant shall be fed and the quantity to be taken each time. For my own part, I believe the best results will be attained by not making much change in regard to the frequency of feeding in mild cases—that is, a young infant should be fed every two or three hours, a child of six months old five to eight times in each twenty-four hours, and older infants about four to six times daily. In severe cases, however, it is different, and the frequency of the feedings and the quantities must be quite different from what was proper in health. Experience has brought me to the conclusion that it is only in rare and exceptional cases, and then only for short periods (twenty-four or forty-eight hours at the outside), that it is either desirable or

useful to administer food oftener than every two hours. The more frequent taking of food than this would seem likely to keep the digestive organs perpetually at work, or even to give them a fresh load before they have had time to dispose of the last taken. My rule, therefore, is, in severe cases, to give a small quantity of food (from half an ounce to three ounces, as it is found the stomach can retain), every two hours. If the case is very critical and collapse or some other form of sudden termination seems so imminent that something must be done, stimulants, which act quickly, will be much more to the purpose than food ; as common practice, therefore, it has long seemed to me that more harm is done than good if food is given as often as every hour, or, as I have frequently seen done, every half-hour.—*Medical News, July* 7, 1888, *p.* 4.

40.—SUMMER DIARRHŒA OF INFANCY AND CHILDHOOD.

By Louis Starr, M.D., Professor of Diseases of Children in the University of Pennsylvania.

The diarrhœal affections of hot weather may be grouped under two heads, namely: 1st, ordinary summer diarrhœa, or entero-colitis, and 2nd, cholera infantum. The former is the more common and the more manageable, and so far from being a mild type of the latter, is a distinct disease, requiring its own methods of treatment.

First: *Summer diarrhœa, or entero-colitis*:—Therapeutic measures often fail in relieving this condition when uncombined with rigid enforcement of the general rules of health. The main hygienic features to receive attention are the following: Fresh air must be secured by taking the child to a public square in the cool of the morning and evening, or, better still, by a morning or evening trip on the water. The heat of the day must be spent in as cool a room as can be had. Coddling is to be discouraged, as many a stout mother has hastened her infant's death by too fond and constant nursing in the arms. The clothing must be as thin as possible, provided that woollen be always worn next to the skin. Twice or three times a day in very hot weather the whole surface of the body must be sponged with water at a temperature of 80° Fahr., and dried with gentle rubbing. The addition of rock salt renders these baths more bracing. Full warm baths must supplant the cold spongings if there be much prostration.

The diet is to be most carefully regulated as to quality, quantity, and intervals of administration. Sound cow's milk must form the basis of the food in bottle-fed babies, and peptogenic powder is a very useful addition to it.

Medicinal treatment varies with the case. Should the patient be seen early in the attack, it is initiated by a laxative. A teaspoonful of castor oil with ten drops of paregoric, or the same quantity of spiced syrup of rhubarb, is sufficient for an infant of

one year. Afterward, while the stools are yellow, homogeneous, and not very frequent, alkalies and astringents are employed:

℞. Sodii bicarb., gr. xxxvi; syr. rhei aromat., ℥ iv; mist. cretæ, q. s. ad ℥ xxiv. M. S. One teaspoonful every two hours for a child of one year.

When the stools are frequent, green, and acid in reaction, the following may be employed:

℞. Syr. rhei aromat., ℥ iv; bismuth subcarb., ℥ ii; syrupi acaciæ, ℥ iv; misturæ cretæ, q. s. ad ℥ xxiv. M. Sig. ℥ i every 2 hours. At the same time the abdomen is to be reddened two or three times a day with a weak mustard draught—one part of mustard to five of flour.

If the evacuations be liquid and contain whitish or greenish flakes, and the above treatment fail after a fair trial, good results often follow a short mercurial course, thus:

℞. Pulv. ipecac. comp., gr. ii; hydrarg. chlor. mit., gr. ss; cretæ preparat, gr. xxxvi. M. ut ft. chart, No. xii. S. One powder every two hours for twenty-four or forty-eight hours, or until the stools become yellow and homogeneous.

Should the stools be frequent and serous, more powerful astringents are used, as aromatic sulphuric acid, silver nitrate, or zinc oxide.

When the stomach is very irritable, rectal injections are resorted to, the drugs used being tincture of opium, nitrate silver, and ipecacuanha. Ipecacuanha is chosen where there is much tenesmus with the discharge of blood and mucus. It may be administered as follows:

℞. Ext. ipecac. fl., ♏xii; tr. opii deod., ♏viii; mucilag. acaciæ q. s. ad ℥ viii. M. S. Inject one tablespoonful every 4 hours.

Stimulants—wine of pepsin, brandy or whisky—are given in all infantile cases where there is prostration.

In cases of recovery, the diet and hygiene must be carefully watched until all danger of a relapse has passed, the astringents are gradually dropped, and digestants and tonics ordered.

The antiseptic treatment recommended by L. Emmet Holt, I have lately tried with good results. It embraces the careful attention to regimen already alluded to, preliminary evacuation of the bowels with castor oil, and the administration of naphthalin or of sodium salicylate. Naphthalin is usually ordered as in the following prescription:

℞. Naphthalin, ground coffee, āā, gr. vi; sugar of milk, gr. xxiv; M. ut ft. chart. No. xii. S. One powder every two hours.

In conclusion, it may be well to draw attention to the fact that the key-note of successful treatment seems to be the maintenance of constant circulation in the contents of the intestinal tract. The object of this is to sweep irritating fæcal matter or secretions away from the intestinal mucous membrane and give the latter an

opportunity to recover from the catarrhal inflammation affecting it. Castor oil and calomel are the best drugs to accomplish this, and small, frequently repeated doses are to be preferred to single large ones, active purgation being undesirable. With bowels so swept, a bland, unfermenting diet, and attention to the health rules already mentioned, every aid is furnished to secure the successful action of such remedies as bismuth subcarbonate, naphthalin and sodium salicylate.

On the other hand, should opium be used to lock the bowels, one great factor in the causation of the disease is fortified in its position, and an increase in the degree of inflammation almost invariably results. The opium used in the foregoing prescriptions is only intended to prevent griping or to secure retention in the case of the injection, not for the purpose of checking peristaltic action of the intestine.

In some cases, particularly where there is irritability of the stomach, milk, in no matter what form or how prepared, seems to keep up the disease. Under these circumstances my plan is to order one or two teaspoonfuls of raw beef juice every two hours according to the age. This diet may be continued for several days until the vomiting stops, and the movements improve in character, when a milk diet may be resumed.

One must not forget that change of climate is a most efficient method of treatment, especially when the seaside is the objective point.

Second: *Cholera Infantum.*—The large and frequent watery evacuations characteristic of this disease are such a drain upon the system, that it is of the first consequence to replace the waste by food and drink, and at the same time check it by appropriate treatment. The irritability of the stomach is a formidable barrier to alimentation, nevertheless every effort must be made to give food in small quantities, and at short intervals. Should the infant be at the breast, it may be allowed to nurse for a few minutes every half-hour or hour. If hand-fed, it may be given the foods suitable in entero-colitis, or in chronic vomiting, in such quantities as can be retained, and at intervals corresponding in frequency to the smallness of the amount. Bits of ice and water should be allowed freely, even though they be rejected as soon as swallowed.

To check the diarrhœa, opium and astringents are necessary. A very serviceable formula is the following:

℞. Liquor morphinæ sulphat., ʒ i; acid sulphurici aromat., ♏ xxiv; elix. curacoæ, ʒ iv; aquæ, q. s. ad ʒ xxiv. M. Sig. One teaspoonful every two hours for a child six months old.

With this, two drops of laudanum, suspended in two teaspoonfuls of starch water, should be given by the rectum every three hours. Two or three times daily a mustard plaster, one part of mustard to five of flour, must be applied over the whole surface of the abdomen, long enough to redden the skin, and the whole body should be sponged several times a day, with water at a temperature of 95° F.

The clothing, diapers, and person must be kept perfectly clean, the sick room must be as large and airy as can be commanded, and the infant must lie upon a bed and not be constantly nursed on the lap. If it be possible, the patient should be sent early to the seashore or country, as this affords by far the best chance for recovery. Failing in this, morning and evening airings in a coach, or daily steamboat excursions, must be resorted to.

Stimulants are needed from the first, to ward off prostration—from five to ten drops of whiskey in a teaspoonful of limewater may be given every two or three hours at the age of six months.

When collapse sets in, the quantity of alcohol must be increased, and, if the stomach can bear it, a combination of stimulants is useful, as:

℞. Spt. frumenti, ʒ iv; ammon. carbonatis, gr. xxiv; syr. acaciæ, ʒ viii; aq. menthæ pip. q. s. ad ʒ xxiv. M. Sig. One teaspoonful p. r. n.

The temperature must be maintained by hot flannel wraps and hot water bottles, and the child be kept in a horizontal position, and disturbed as little as may be.

In this stage astringents are still indicated, but opium must be used with great caution, or even discontinued entirely, when there are cerebral symptoms and semi-coma.

In the fortunate instances in which this plan is successful, it is still necessary to treat the succeeding diarrhœa, and to build up the general health by good food, tonics and fresh air.—*Medical Standard (Chicago), July* 1888, *p.* 1.

DISEASES OF THE URINARY ORGANS.

41.—ON THE TREATMENT OF URÆMIA.

By William Carter, M.D., F.R.C.P., Physician to the Royal Southern Hospital, Liverpool.

[After a most interesting and instructive discussion of the theories which have at one time or another been propounded in regard to the origin of the Uræmic State, Dr. Carter concludes his Bradshawe Lecture with the following remarks upon its treatment.]

It must be admitted that, so far as newer and better methods of treatment are concerned, research has largely served, in this as in many other departments, but to emphasise and confirm the value of practice already established. But it has done more—it has pointed out early symptoms, the importance of recognising which cannot be over-estimated, and by establishing the relations between these and defective renal function, has driven home upon the medical mind the necessity of determining by frequent examination the relation between body weight and the amount of

urinary constituents. Insurance offices are beginning generally to recognise the value of this, and their requirements will healthfully stimulate medical men to go further in urinary examination than has up to lately been thought necessary. The accumulation of toxic products in the blood and tissues is often very slow, and the slighter the warning afforded by early symptoms the more valuable will treatment be likely to be. The principles on which practice must be based consist mainly (1) in cutting off one or another of the urinary poisons at their source, now that we know to some extent what these poisons consist of, and whence they are derived. Under this head we recognise the great importance (*a*) of limiting potassium salts both in food and in medicine, (*b*) of employing the simplest and most easily assimilated diet, such as milk, (*c*) of bowel disinfection, (*d*) of maintaining at its best the functional activity of the liver, (*e*) of care in the nature of nutrient enemata when these are required. (2) In directly and indirectly withdrawing or diluting the uræmic poison, by (*a*) venesection, (*b*) purging, (*c*) sweating, (*d*) transfusion. (3) By burning up the poison, by (*a*) active exercise, (*b*) the administration of oxygen or oxydisers. (4) In antagonising the poison, or at least overcoming special symptoms.

Reducing the above principles to practice, the first caution inculcated as to potassium salts would lead to the substitution of sodium bromide and other sodium salts for the corresponding ones of potassium, as the former have only one-fortieth of the toxicity of the latter. According to Bouchard, one-fifth of the total toxicity of normal urines is due to poisonous products reabsorbed into the blood from the intestines, and resulting from putrefactive changes which the residue of food undergoes there. Can the formation of such products be controlled? If a healthy man is fed for a given length of time on an ordinary mixed diet, and then for an equal length of time on milk alone, the urine of the second period is much less poisonous to animals when injected into their veins than that of the first, hence the great value of milk as an article of diet to the Brightic. But this value was firmly established by Dr. G. Johnson from clinical observation, and has been fully recognised for many years by all practical physicians.

The compact and small fæcal residuum from milk, the deficiency of this residuum in biliary colouring matter, and the small proportion of potassium salts in milk, all help to explain its utility. But it sometimes happens that it cannot be digested; the question then arises as to whether the destruction of biliary colouring matter and of the soluble products of intestinal putrefaction can be effected even when dietetic means fail. A practical answer seems to be given by such experiments as the following. If a healthy man is fed during a given period on an ordinary mixed diet alone, and during another and equal period on a similar diet,

plus certain agents capable of disinfecting the contents of the lower bowel, there will be as great a difference in the toxicity of the urines under the two sets of circumstances as there is under a milk and non-milk diet respectively, it being much less when the disinfectants are used. The best bowel disinfectants are naturally those which pass through the intestines unchanged, exercising their local effects on the way, and the employment of these is suggested for the purpose of cutting off one cause of indirect blood contamination at its source. The idea is a valuable one, and its application capable of and already receiving wide extension. Naphthalin, iodoform, and animal charcoal, being among the least soluble of non-poisonous antiseptics, are on that account chosen by Bouchard, and recommended for the purpose indicated. Our choice, happily, is not limited to any one mode of administering these, or even to these substances alone, or the utility of the principle would be seriously curtailed. That they will arrest putrefactive changes in the bowel, and the last mentioned diminish the colouring matter of the urine, is certain, but although a healthy man may by an effort take a mixture containing the large quantities of them required for the purposes indicated, it is unhappily often otherwise with the subjects of Bright's disease, and especially with those in whom uræmic symptoms are present. The stomach is so abnormally irritable in them, that even the blandest nutriment is often rejected, and almost all medicines share the same fate. Occasionally, however, the disinfectants are tolerated, and when they are distasteful in one form, the manifold resources of modern pharmacy can present them in others that are not so. It is well to know that even iodoform and naphthalin can be so presented as to be perfectly free from odour, while iodol has no odour to correct.

Though I feel no doubt as to the value of this principle in the treatment of uræmia, and though I have applied it to practice on all fitting occasions, yet the time during which this application has been made is too short to warrant me in speaking in other than these general terms of approbation. M. Bouchard, however, mentions three cases where, in the practice of his colleague M. Tapret, "uræmic accidents yielded when intestinal antisepsis was realised," and one under his own care where a "formidable uræmic dyspnœa disappeared on the morrow after the administration of naphthalin." He adds, with characteristic fairness and caution, "these are only four facts, but they are encouraging, especially when one considers the small number of therapeutic means at our disposal for combating uræmia." This note of encouragement will probably be re-echoed by us all.

But if the poisons have been already absorbed or retained in sufficient quantity to produce convulsions or coma, something further must be attempted. It is then open to us, according to cir-

cumstances, to abstract some of the poison by abstracting a portion of the blood which contains it, or to dilute the poison by diluting the blood by the addition either of healthy blood or other fluid, or to try and draft away some of the poison by organs compensatory to the kidney; or, lastly, to antagonise the symptoms by appropriate medicines administered hypodermically or by the bowel. Whether blood shall be added or abstracted must depend largely on the general condition of the patient. If the pulse is hard and quick, a moderate bleeding will do no harm even if he should be anæmic, and if he is not anæmic will be likely to do much good. And perhaps I may be pardoned for alluding to what I conceive to be an error even yet too largely prevalent, namely, that if the disease is advanced enough to cause uræmic convulsions, it must also be advanced enough to cause anæmia. This certainly is not the case; a person may be overwhelmed with fatal convulsions in the midst of apparently robust health, and the contracted kidneys and hypertrophied heart alone reveal, post mortem, the length of time that the disease had existed.

Happily there is a great margin of reserve in the healthy kidney, or probably we should all be liable at times to uræmia. But when contraction has proceeded to any extent, though the increased outflow caused by the large heart and heightened blood-pressure may preserve the patient from uræmia under favourable conditions, yet these are very easily disturbed, and then danger becomes immediate. I have already related an instance where relief to convulsions was afforded by a free abstraction of blood, and where the patient came under treatment nine years after. This is an example of some few that have come under my notice. On the night of July 23rd, 1881, I saw, with Dr. A. Williams, of Liverpool, a robust man, aged 60, whose tight arteries and large heart told immediately of renal cirrhosis, even if there had not been the confirmatory evidence of the abundant discharge for a long time of urine of low specific gravity. After twitching, which had commenced in the right forefinger and extended thence to the right arm and leg, he had become the subject of general convulsions which had recurred for some hours with scarcely any conscious intervals. Sweating was profuse, temperature 105° F., and he was deeply comatose. We immediately bled him very largely from the right arm; the quantity of blood was not measured, but I do not think it could have been less than from 25 to 30 fluid ounces. There was an immediate diminution of the convulsions, which shortly ceased altogether, and soon afterwards the patient appeared to be well.

But adding to the blood will equally dilute the poison, and if the patient is very anæmic as well as very unconscious, it may be the only safe and even the only possible way of doing it. M. Dieulafoy relates the case of a woman, aged 27, the subject of

Bright's disease, who had been overtaken by convulsions, followed by coma, and in whom there had been an absolute intolerance of milk, into whom he injected by means of his transfuser 120 grammes of blood, with the effect of a complete clearing away of the uræmic symptoms and a subsequent great improvement, as indicated by diminished albumen, improved general nutrition, and increased body-weight. Six weeks after leaving the hospital she was again overtaken with coma, a second transfusion was again followed by a speedy return of consciousness, and by a copious urination, but on this occasion by no diminution of the albumen. The respite, however, was short, pulmonary œdema, double hydrothorax, and death soon following. It is by no means easy, however, to procure blood for purposes of transfusion. I have on two occasions, though not in uræmics, injected freshly-drawn goat's milk by means of Higginson's transfusion apparatus, and in cases where neither of these could be procured, it would be well to inject the solution of chloride, phosphate, and carbonate of sodium, sometimes used in the coma of diabetes.

The practical value of purgation and diaphoresis in warding off the severer symptoms of uræmia seemed to have been so firmly established that it would not have been necessary to insist upon it if Bouchard had not spoken in somewhat doubtful terms of it. He critically examines the effects of purgation, for example, compares the small amount of urea drafted off in the intestinal fluid with that eliminated in the urine, and speaks of the alternate dehydration by purgatives, and subsequent hydration by means of imbibed liquids as a "dangerous game," but at the same time admits that diarrhœa must abstract poison from the blood, founding the admission on the reduced toxicity of the urine of a healthy person secreted during the four hours of a medicinally induced purgation. But we have better evidence than this, for we see constantly headache and even more alarming symptoms rise and fall in the Brightic, according as diarrhœa is suppressed or established. An empirically established fact of this kind is quite as reliable in practical medicine as any other, and would remain as valuable if it could be proved that no poison at all were eliminated by the bowel. In this instance it is somewhat difficult to see the force of Bouchard's criticism. Urea is not the poison which causes the symptoms. Whether it is or is not discharged by the bowel is not, therefore, of much consequence. What the true poisons are, except potassium salts and colouring matter, is unknown; it must be possible, therefore, that they may be discharged from the intestine, even if it were established—which I do not admit to be the case—that urea in large amount cannot be.

The following case, admitted to hospital in September of last

year, showed in a striking manner the value of purgation and the danger of its suspension. It is one to which allusion has already been made. Its features were constant diarrhœa, sub-normal temperature, dilated pupils, frequent and severe headache and vomiting, inactive skin, and urine of low specific gravity, not very abundant, deficient in urea, but with abundance of albumen. His symptoms, with a general tendency to improvement, lasted for many weeks, but in the middle of December the bowels became suddenly inactive, while the urine, instead of increasing in quantity fell to less than half. Coincidentally with this change he became very drowsy, lost his sight, and then was paralysed in the left hand and forearm. This paralysis passing off during the day, at 10 P.M. general convulsions supervened, and for two days he remained very stupid. The aperient which had been given to him at the outset then acted freely, and all the threatening symptoms cleared away; but once subsequently, on the occasion of temporary constipation, general convulsions again occurred, after which, great care being taken to secure daily free action of the bowels, no further uræmic symptoms were manifested during the seven weeks of his stay in hospital.

Some twenty years ago physiologists learnt from Dr. Parkes that severe bodily labour had but slight and sometimes no effect in increasing the amount of nitrogen eliminated, a fact confirmed by all subsequent observers, not even excepting Mr. North. Muscular exertion and muscular waste, muscular waste and increased nitrogen discharge, had been so long considered as necessarily associated causes and effects, that nothing but the rigidity of the proof advanced by Parkes dispelled the belief. The old superstition still clings, for it certainly was somewhat of a surprise to be assured that the urine of one working hard in the open air was less toxic to others, and that, therefore, the urinary constituents, while still existing in the blood, were less toxic to himself than that of the same man when resting at home. Another experience gives the explanation: "I have seen a sojourn in compressed air diminish the urinary toxicity by more than one-half," says Bouchard. The only factor common to the two conditions of hard work in the open air and no work in compressed air is increased oxygen consumption. On such facts as these, Jaccoud founds his treatment of Bright's disease. He gives inhalations of oxygen, 10 litres three times a day, allows only the simplest possible food, and promotes tissue exchange with the inhaled oxygen by a systematic application of douches followed by frictions. That this method of treatment is as useful in practice as it is rational in theory I feel convinced, and the readiness with which pure oxygen can now be obtained in a condensed form, and the ease with which by means of a gasometer and inhaler it can be administered in exactly measured quantities, and with any required degree of

dilution with atmospheric air, ought to ensure its utility being extensively tested. My own daily increasing experience of it serves but to confirm my belief in its advantage: and I have certainly seen headache and vomiting disappear under its use.

It is more difficult to decide on the utility of antagonisers of uræmic poisons. Morphine, for example, though much extolled by Drs. Loomis and Davis, of New York, as the most efficient agent, when hypodermically injected, for controlling uræmic convulsions, requires to be used with very great caution where it is used at all, as cases are mentioned by Dr. Wood, of Philadelphia, where its employment was shortly followed by death in coma. I feel quite sure that the agents which give most relief in uræmic asthma are those which relax vascular spasm: and of them the most generally useful is ozonic ether. From half a drachm to a drachm of this will nearly always mitigate the severity of the dyspnœa, and sometimes entirely remove it. In one case an ounce of whisky in hot water gave sleep every night, and prevented the spasm. Another patient, though relieved by similar means, found most benefit from free friction of the chest and arms, and by having them wrapped up in hot cotton wool. When we know the exact nature of the poisons which produce this and other symptoms, our remedies will be less empirical.—*British Med. Journal, Sept.* 1, 1888, *p.* 463.

42.—ON THE TREATMENT OF DIABETES MELLITUS.

By B. Hofmeister, M.D., Carlsbad.

There is no general rule for the treatment of diabetes mellitus; each case must be dealt with according to its individual features. It would be a great mistake to allow every patient passing only a trifling quantity of sugar a greater amount of starch; on the other hand, it would be wrong to be too rigorous towards every patient with 5 per cent. and above. The first indication is to improve the general health, remove the most urgent symptoms, and give tone to the nervous and muscular system. We certainly succeed in Carlsbad in some cases in lowering the amount of sugar from 5 per cent. to a mere trace solely by strict diet. This may be done in a very short time, frequently within twenty-four hours; but the patient derives no benefit from the loss of his sugar; on the contrary, he feels daily worse, he declines rapidly, so that we are compelled again to allow him a certain quantity of amylaceous food, with the certainty of increasing the excretion of sugar, but, at the same time, of improving the condition of his health. In like manner we sometimes observe that patients of the *c* group, with 0·5 per cent., or still less, will not get better as long as this small quantity of sugar is not wholly got rid of by means of the strictest diet (Cantani's). Yet, setting aside the question of

idiosyncrasy, there remains a series of hygienic and therapeutic rules equally suitable for all sufferers from diabetes. Although these rules are generally enough known, they are of such essential importance that I may be allowed to summarise them.

1. The dietetic and hygienic regimen ought not to be totally changed in a sudden way. Sweet things must be at once forbidden; the amylaceous food should at first be confined to vegetables of all kinds, except the leguminous ones, and bread, 100 grammes of which may be allowed, this quantity being gradually reduced to 60 grammes, and so on.

2. Pure fat and fatty meats are highly to be recommended for their great efficacy against congenital predisposition to diabetes; 150-200 grammes may be allowed daily.

3. An exclusive meat diet (Banting treatment) is rather dangerous in diabetes, because it strongly promotes the disintegration of albumen, that is to say, emaciation.

4. All substitutes for bread are objectionable, partly because they contain a considerable amount of starch, and partly because they are all more or less indigestible. Fürbringer's gum bread (*Kleberbrot*), manufactured by Basserman, at Manheim, seems to be the least injurious of these.

5. Diabetics ought to masticate perfectly each bit of food, eating slowly, to mix the food completely with the mucus of the mouth.

6. In all cases in which a somewhat larger indulgence with regard to diet is admissible, all sorts of vegetables, including the sweet ones (turnips, carrots, cabbages, etc.), only excluding the leguminous (peas, beans, and lentils) are permitted, likewise raw kernel fruits and berries.

7. Milk and wine should be allowed only in small quantities, even in mild cases; half a pint of each daily should be looked upon as the maximum dose. All sorts of beer must be forbidden under all circumstances.

8. Exercise is much indicated, especially as long as farinaceous food is partly allowed. The best time for it is immediately after dinner, and it should be continued for at least two hours. Riding on horseback and hill climbing (if the ascent is not too steep) is certainly preferable to gymnastic movements indoors; but when outdoor exercise cannot be taken we are now in possession of a good substitute, I mean the "ergostat" recently invented by Professor Gärtner, of Vienna (see Journal, January 7th, 1888.) Patients, who, in any stage of the disease, are easily fatigued by the least muscular exertion, will derive great benefit from daily massage of the whole body for twenty minutes (Finkler).

9. Warm baths, as the best means of keeping the functions of the skin in order, are very beneficial to sufferers from diabetes, provided that they are used at a temperature of 93° to 94° for fifteen minutes not oftener than twice a week.

10. The mineral waters of Carlsbad are undoubtedly of the greatest use in the dietetic and medical treatment of diabetes; their effect is mostly due to the alkaline salts they contain. Although there are several alkaline springs in Germany and elsewhere which have similar ingredients, though in different proportions, and which boast of still better climatic conditions than Carlsbad, yet in their efficacy against diabetes they are far inferior to Carlsbad. According to the theory of Ebstein, the efficacy of alkaline waters in general would be clearly explained by the direct supply of carbonic salts and free carbonic acid to the protoplasm of cells of the whole system; but the question why any other mineral water with as much carbonic acid is not to be compared to those of Carlsbad in efficacy against diabetes remains unanswered. Pfeiffer, of Wiesbaden, attributes to Carlsbad waters the capacity of restraining the organic disintegration, and hence their beneficial influence in diabetes accompanied by emaciation. The quantity to be taken in diabetes is not different from that indicated in other diseases. It is continued till the urine becomes alkaline, or other symptoms of saturation appear. In severer cases the treatment should be carried out twice a year—in the spring and in the autumn. That drinking the water at Carlsbad itself is of much greater value than drinking it at home is so well known that I need not dwell on that point.

11. Among the innumerable drugs recommended for diabetes, there are but few worth mentioning. In the first place there is opium, the tolerance of which by diabetic patients is remarkable and inexplicable. Opium makes the sugar disappear; it diminishes abnormal tissue-waste, and consequently increases the weight of the body; it causes neither narcosis nor constipation in doses which would be positively dangerous if given in other diseases. Still more efficacious is morphine, in doses of from 1 to 3 grains daily. The beneficial effect of these drugs, however, does not last very long; after three or four months they lose their effect, and there is, moreover, the risk of the opium-habit becoming confirmed. They should, therefore, be taken only at long intervals, and under strict medical supervision. Salicylic acid, phenol, and salicylate of sodium, are far less useful.

In conclusion, I venture to lay down the following propositions, as summing up the results of my studies and observations:—(1) We are still in total ignorance as to the etiology of diabetes mellitus. (2) The quantity of sugar found in the urine is of no significance at all in judging of the severity and danger of any particular case of diabetes. (3) The smallest traces of sugar, found only by most careful chemical examination of the urine, are of considerable importance in a great many cases, so that they cannot be left out of account in trying to arrive at a correct diagnosis and prognosis. (4) The dietetic treatment must be

adapted to the special requirements of each case, as there are cases in which, without regard to the amount of sugar excreted, complete abstention from starchy matters is not only useless, but directly injurious. (5) According to the present knowledge, strict antidiabetic diet, combined with the use of the mineral waters of Carlsbad, is the best method of treating diabetes mellitus.—*British Med. Journal, May* 5, 1888, *p.* 948.

43.—USE OF SACCHARIN IN PREVENTING AMMONIACAL CHANGE IN URINE IN CHRONIC CYSTITIS.

By James Little, M.D., President of the King and Queen's College of Physcians in Ireland.

The management of cases of chronic cystitis has been greatly improved of late years, and as a consequence its power of inducing secondary changes in the kidneys, and so destroying life, has been greatly lessened. Of these improvements I think the first place is due to the manufacture of catheters which can be easily used by the patient himself without risk, by which means the accumulation of residual urine in the bladder is prevented. At the same time, medical men have become impressed with the necessity of urging scrupulous cleanliness in the instruments introduced into the bladder—a precaution which, a few years ago, was certainly neglected. As a consequence of the introduction of catheters which can be passed without pain or violence, I believe much relief has been given, and ammoniacal changes in the urine prevented by washing out the bladder with warm water, or antiseptic solutions; but it has always appeared to me, perhaps because I am a physician and not a surgeon, that it is better if we can, to keep the urine free from decomposition by medicines given by the mouth, and so reduce instrumental interference to a minimum, and this practice I have always followed, especially in the case of aged persons who have come into my hands, and in whom chronic cystitis constituted part of their sufferings. Unfortunately, such patients have not infrequently irritable stomachs, as well as irritable bladders; and most of the drugs which are useful in keeping the urine sweet are liable to disagree and cause sickness. This certainly applies to the remedies which were chiefly used a few years ago—quinine, tincture of perchloride of iron, benzoic acid, and benzoate of sodium. Boric acid, which has been more used of late, is not so likely to sicken, and is, I think, best given in lemonade.

For the past three years I have been asked, from time to time, to see a lady, nearly eighty years of age, who is quite confined to bed in consequence of chronic disease of the bladder, which gives rise to frequent and painful calls to pass water. The urine always threw down a copious purulent sediment, and except when decom-

position was prevented by treatment, was always ammoniacal. The lady has many times passed, with great suffering, phosphatic calculi, and, I have no doubt, many such exist in the bladder, but she has always refused to permit any surgical interference beyond the occasional introduction of a soft catheter, and the washing out of the bladder by a lady who acts as her nurse. Quinine and boric acid, when taken in fair doses, always purified the urine ; but about three months ago her stomach became so irritable that these drugs could not be borne, and the washing out of the bladder by a weak warm sublimate solution could no longer be practised, as the passage of the catheter had become exquisitely painful. The consequence was that the urine became so offensive that the odour met one on the stairs, and the patient's attendants had often to leave the room to avoid being sick. In this difficulty it occurred to me to try saccharin. I directed six of the tabloids to be used daily. In three or four days the urine was no longer offensive. The patient has continued their use ever since, and the urine has not again become ammoniacal, though there is little, if any, diminution in the quantity of contained pus.

Since the foregoing case came under my observation, I have had four other opportunities of observing the effect of saccharin in patients who were passing ammoniacal urine. They were all males; one a case of catarrh of the bladder, in a paraplegic gentleman ; one a case of chronic cystitis, with enlarged prostate ; and two cases, in which there had existed stricture of the urethra, but in which, although a surgeon had successfully dilated the stricture, the urine remained ammoniacal. In all these cases the saccharin was distinctly useful, but in all its administration had been combined with the daily use, by the patient himself, of a catheter, so as to prevent the accumulation of residual urine in the bladder—a precaution without which no drug will, I think, prevent decomposition of the urine.—*Dublin Journal June, p.* 493.

44.—ON THE RETINAL CHANGES IN BRIGHT'S DISEASE.

By Robert Maguire, M.D., M.R.C.P., Physician to Out-Patients at St. Mary's Hospital, London.

In Bright's disease, various forms of retinal change are met with, Dr. Gowers, in his Medical Opthalmoscopy, enumerates (1) diffused opacity from œdema, (2) white patches, (3) hemorrhages, (4) optic papillitis, (5) diffused retinitis, and (6) atrophic changes sequential to inflammation. Of these, the first form is common ; the latter three, consisting of inflammatory changes and their consequences, are rare. In the condition ordinarily known as albuminuric retinitis, the appearances usually found are those of hemorrhages, or of white patches in the form of a radiating striæ, most numerous round the macula lutea.

The pathology of these changes, and their relation to the disease with which they are associated, is by no means clear. In the majority of cases the term albuminuric retinitis is a misnomer, for the condition of the retina is not one of inflammation. This is obvious, of course, in the case of hemorrhages. The characteristic white patches when present might be the result of previous hemorrhages, or of inflammation, or of simple degeneration. The microscopic examination usually, however, points to the latter origin. The patches are not found in the site of old hemorrhages; they are not usually seen in the immediate neighbourhood of blood vessels, and they show at no stage of their existence any trace of blood pigment when examined either by the micoscope or ophthalmoscope. Similarly, no traces of inflammatory action have been discovered in such patches. We must conclude, therefore, that they are from the first degenerative.

When we compare a number of cases of Bright's disease presenting such changes in the retina, it is not easy to find a common feature. The changes are most common in very chronic cases, and especially in cases of granular kidney, but the most varied features may be present. In some cases the ordinary name for the affection is a further misnomer, in that no albumen is present in the urine. I have one case under treatment at the present time in which albumen is found only in the urine passed after meals and exercise, and then in almost infinitesimal quantities; indeed it can only be demonstrated by the magnesium-nitric test. On other cases, a very large amount of albumen may be present in the urine. Similarly other common features of Bright's disease may vary without any influence upon the retinal disorder. The one feature which I have observed to be common to cases of so-called albuminuric retinitis is an excessively high arterial tension. A certain degree of increased tension is a normal, and one might almost say a healthy, condition in Bright's disease, and the aim of treatment in granular kidney should be to maintain such a degree of arterial tension as shall not pass, in either direction, beyond this normal. In cases where retinal changes are seen, the arterial tension will usually be found to be very high even for Bright's disease, provided that cardiac failure has not set in since the onset of the retinal affection. The relation of the high tension to the hemorrhages is, of course, obvious. In any case of granular kidney the strain upon the vessels may be relieved by rupture, giving rise to hemorrhage, possibly; the blood may be poured out in some comparatively safe part of the body, such as the nose, the lungs, or even the kidneys themselves, and the patient is often much relieved thereby; the hemorrhage may, however, take place into the brain or retina, and cause serious mischief.

I am inclined to think that the degenerative patches also may be caused by the high arterial tension. We know that, associated

with high arterial tension there is a deficient circulation through the smaller vessels. In Bright's disease the retinal arteries are commonly extremely small. Dr. Gowers mentions a case in which a reduction in size of the retinal vessels was observed to coincide with a marked increase in the tension of the pulse. The parts supplied by such abnormally small arteries must to a certain extent be deprived of nutriment. It must be remembered also that the whitish patches are commonly found in those parts of the retina which are comparatively remote from blood-vessels, and the most likely to suffer from deficient circulation. It may hence be reasonably deduced that the white degenerative patches are evidences of a deficient nutrition consquent upon disordered circulation.

Such a view explains certain other relationships of the retinal change. Thus, so-called albuminuric retinitis is very rare indeed in cases of amyloid kidney, and in this form of Bright's disease it is also rare to find either increased arterial tension or cardiac hypertrophy, unless the affection be complicated by granular change of the kidney. Again, the presence of retinal change is usually and rightly looked upon as increasing the gravity of the prognosis in Bright's disease, not only as regards the eyesight, but as regards the life of the patients. If, as I venture to propose, the retinal changes, whether hemorrhagic or degenerative, are due to the increased arterial tension, and this is caused by the poisoned blood, it must be that the retinal change indicates a high degree of blood-disorder, and consequently a severe phase of the general disease. We have thus a reason for giving a grave prognosis.

In puerperal albuminuria the occurrence of retinal changes is not necessarily of unfavourable omen as regards the life of the patient, although possibly indicating a greater tendency to convulsions. The reason for this is clear, if the relation of retinal degeneration to the arterial tension is borne in mind. During the puerperal state the vascular system of the mother has to carry the excrementitious matter of two beings, herself and her child. The attempt on the part of the kidneys to remove such effete substances leads to their irritation, to the transudation of albuminous bodies, and sometimes to severe and permanent organic disease. The presence of the excrementitious matters in the blood causes also high arterial tension, and, according to the view put forward, may produce hemorrhagic and degenerative changes in the retina. But when parturition has taken place, the cause alike of the albuminuria and of the high arterial tension is removed, and since the high tension constitutes the danger to life when retinal changes are present, it follows that when the high tension is removed the retinal change no longer justifies so gloomy a prognosis.—*British Med. Journal, July* 14, 1888, *p.* 74.

Surgery.

AMPUTATIONS, FRACTURES, DISLOCATIONS, AND DISEASES OF THE BONES, JOINTS, ETC.

45.—ON THE ADVANTAGES OF PLASTER-OF-PARIS DRESSINGS AS A MEANS OF SPINAL SUPPORT.

By Lewis A. Sayre, M.D., New York.

[Dr. Sayre concludes a most interesting paper, mainly devoted to the narrative of his discovery of the Plaster-of-Paris Jacket, with the following observations upon the value of some recent modifications of his process. The paper was read before the New York Academy of Medicine, on May 18th, 1888.]

This is not the time or place to describe my method of applying the plaster of Paris as a spinal support, as that has already been so fully done in my published works. But some substitutes have been offered to take its place, such as silicate of sodium, the porous felt, leather, etc. The objection to the first is its want of porosity and difficulty of removal. The felt splint is also impervious to the air, on account of the gum that is in it, and it has not sufficient firmness to retain its form unless sustained by iron supports, and cannot be constructed in any part of the country by the ordinary physician independent of the instrument maker, as the plaster-of-Paris jacket can.

The same objections apply to the rawhide of Darrach, the leather jacket of Bartow, and the wire corset of Roberts. They cannot be made except by the skilled mechanic, and cannot be compared to the plaster jacket for comfort and utility, even when made by the most accomplished instrument maker.

Mr. Davy, of London, has also made some modifications in my mode of applying the plaster-of-Paris jacket, by laying the patient in a hammock, instead of partially suspending him, as I always do. The objection to this mode is that the body is bent too much in a backward curve, and also that the thorax is more compressed when the child is lying on its stomach than when it is partially suspended, according to my plan, which necessarily expands the thorax to its fullest capacity, and this capacity of thoracic expansion I look upon as of most vital importance, and, in fact, the restriction of this thoracic expansion is one of the principal objections to some, if not most, of the other spinal supporters. It is true that Mr. Davy has now modified his plan somewhat by cutting a hole in the hammock to let the head fall through, and another for the feet, and then by having extension made by two

assistants while the plaster bandages are being applied. But, as the child is lying with its face toward the floor you cannot see the effect of your traction on its countenance, and therefore may apply it too strongly or not strongly enough; and, as the child is often too young to talk, you can only be governed in your amount of traction by the effect produced in its countenance by the expression of either pain or pleasure.

When applied as I suggest, the gradual traction can be continued until you reach the point of greatest comfort, which is easily recognised by the child's expression, and can then be securely retained until the plaster is accurately adjusted, when the retention in this position of perfect comfort will be permanent.

The various substitutes that have been suggested to take the place of plaster of Paris—such as silicate of sodium, shellac, porous felt, gutta-percha, etc.—are all objectionable on account of their want of porosity, and therefore being impermeable to the air, whereas the plaster jacket is perfectly permeable to the air, as is seen in this experiment: by blowing the smoke into this tight plaster-of-Paris box, you see it emerging from *all* its parts, thus proving its porosity, which is of such vital importance in retaining the skin in a healthy condition and not interfering with the insensible perspiration, which is a point of vast importance. In cases of rotary lateral curvature, where the deformity has been allowed to progress to the point of requiring artificial support, there is no substitute that can be applied that will so well retain the body in the improved position which partial self-suspension gives it, and which can be worn with so much comfort to the patient as the plaster-of-Paris corset.

Conclusions.—That the plaster-of-Paris jacket and jurymast in cases of spondylitis or Pott's disease, and that the plaster-of-Paris corset in cases of rotary lateral curvature, are altogether superior to any other instruments yet devised for the relief of these infirmities, and for the following reasons:

1. They can be applied in any place and by any competent physician with perfect success, without the intervention or aid of any instrument maker. This to the country practitioner is a point of most vital importance.

2. They can be worn with perfect ease and comfort to the patient in all cases where they can be properly applied.

3. The plaster-of-Paris jacket and jury-mast retains the spinal column in a more quiescent condition, and relieves the inflamed parts from the pressure of the superincumbent head and shoulders in case of spondylitis better than any device heretofore employed.

4. That, being applied while the hands are over the head and the body partially suspended, the thoracic cavity is expanded to its utmost capacity, thereby increasing the ability for full inspiration better than can be done by any instrument which is retained

in position by girdling the thorax, either by fixed bands or by elastic straps.

5. That, being porous and permeable to the air, it does not interfere with the insensible perspiration, and is therefore infinitely more healthy than the shellac, gutta-percha, felt, leather, rawhide, silicate of sodium, or any of the other substitutes that have been suggested to take its place.

6. That it does not "breed vermin" or other filth, as has been charged against it, but is, on the contrary, more cleanly and more healthy on account of its porosity.

7. That, in cases of rotary lateral curvature, when the deformity cannot be overcome by any amount of lateral pressure until the column has been elongated, the plaster-of-Paris bandage can be more *accurately* applied than any other material, and, being thus accurately adjusted to all of the irregularities of the body, and closely fitting it in every place, will retain the body in the improved position which partial self-suspension gives it better than any other device, and be infinitely more comfortable to the patient.

From all these facts we feel justified in quoting the language of Mr. William Adams, of London, at the International Medical Congress held in Copenhagen in 1884, when he said: The modifications in the plaster-of-Paris jacket which Dr. Sayre has recently introduced and exhibited to this meeting seem to have *perfected* the jacket as a mechanical support."—*New York Med. Journal*, *June* 16, 1888, *p.* 647.

46.—ON FRACTURE OF THE FIRST RIB ALONE.

By F. Marsh, F.R.C.S., Surgeon to Queen's Hospital, Birmingham.

Mr. Arbuthnot Lane, Senior Demonstrator of Anatomy in Guy's Hospital, has shown that fracture of the first rib alone is not so rare an accident as would be inferred from a study of our standard surgical authors. He has found four *undoubted* examples of this in less than 200 subjects consecutively examined in the dissecting-room of Guy's Hospital. The subjects were adult and well-developed, and in each case the fracture occurred on the right side and in the following places:—*Case* 1 (female). One inch and a quarter external to the tubercle. *Case* 2 (male). At a point corresponding to the subclavian groove (ununited). *Case* 3 (male). At the site of the insertion of the scalenus medius. *Case* 4 (male). Immediately internal to the facet for articulation with the transverse process of the dorsal vertebra. One other case has been recorded, in the article on "Injuries to the Chest" in Holmes's System of Surgery, third edition, by the late Mr. Lyell. This was a child run over, the left first rib being fractured posteriorly near the neck. We thus see that a fracture of this rib may take place almost at any point, but as yet there are not a

sufficient number of cases to show the most common site. The fracture may be caused by direct or indirect violence, and three methods are suggested by Mr. Lane: (1) by direct violence to the posterior portion of rib, (2) by force applied to the manubrium sterni, and (3) by force transmitted through the clavicle.

Undoubted cases of fracture by methods 1 and 3 have come under my notice, and I am of opinion that if a fracture of the first costal arch, rather than of the sternum, is caused by method 2, the cartilage, if ossified, and not the rib itself, will probably be fractured, unless at the same time a counter force is applied to the dorsal extremity of the arch. How is it that this fracture has not been recognised during life? I would refer to a specimen of fractured first rib, shown before the Midland Medical Society by Mr. A. F. Messiter last session, which may elucidate this question. It was taken post-mortem from a man who had been run over, several of his ribs on the right side being broken and the lung perforated. The clavicle was intact. Death took place soon after his admission into hospital. There was an almost transverse fracture through the middle of the rib, but the periosteum on one surface was intact, and would have prevented any displacement. Now, Mr. Lane has shown from his numerous experiments on the cadaver that these fractures are usually incomplete, so that I think we may fairly conclude that displacement is the exception and not the rule. In the absence of displacement the symptoms can be but slight, possibly not sufficiently urgent to cause the patient to seek surgical advice. There will be localised pain, varying with the extent of the injury, sometimes vaguely referred to the shoulders, perhaps only felt on certain movements of the shoulder girdle, raising the arm, lifting a weight, &c., but always determinable and definitely localised by careful manipulation, especially in the supraclavicular fossa. In the more severe cases, and when the fracture is complete, pain will be felt in addition during ordinary or deep respiration, on coughing, and on putting the scalene muscles into action.

Crepitus may also be obtained, when the fracture is complete and through the anterior half of the rib, by fixing the cartilage as far as possible and moving the rib in the supraclavicular fossa. Any injury to the lung or pleura will, of course, exhibit the symptoms usual in such injuries. The subclavian and axillary vessels have hitherto escaped implication. The diagnosis must be made from contusions of the shoulder, scapula, and clavicle; they are often coexistent, and may mark the rib injury in the slighter cases. The treatment I have employed in the few cases that have been under my care is to bandage the arm, as in fractured clavicle, thereby preventing movement, removing the weight of the arm and elevating the clavicle, and in a complete fracture through the anterior half, well padding the supra- and infra-clavicular hollows.

In a paper read before the Staffordshire Branch of the British Medical Association in May, 1887, I recorded one undoubted case of complete fracture of the right first rib alone, evidently caused by force transmitted through the clavicle; the symptoms were those described above, and crepitus was plainly felt; in fact, the diagnosis was mainly due to discovering this crepitus whilst manipulating the shoulder and clavicle. Not having then read Mr. Lane's contributions, I was surprised at such an unusual and rare fracture. Two other cases were referred to in that paper, both, I believe, caused by force transmitted through the clavicle. In both instances other ribs were broken. One was a woman who fell down a flight of stairs, finally pitching on to her left shoulder; two or three lower left ribs were broken, and there was every symptom of an incomplete fracture of the first left rib without displacement. The other was a man who had been knocked down and severely kicked, two of his lower true ribs being fractured, and on the same side the physical signs of fractured first rib. One other instance also came under my notice, which is doubly interesting. It illustrates not only a fracture of the first rib alone posteriorly by direct violence, but the pressure effects of carrying a bulky weight on the shoulder.

J. H., aged sixty-one, was admitted into the casualty department on July 2nd, 1887, with the following history. He was following his occupation of trusser of hay, when a large truss fell from a height, the edge of it striking him posteriorly at the junction of the neck and shoulder of the left side. Localised pain whenever he attempted to lift anything caused him to apply for relief. Little or no pain was experienced when the arm was at rest. On examination, one was at once struck with the distance of the superior angle of the scapula from the cervical vertebræ on the left side compared with the other one. The man was in the habit of carrying large trusses of hay on this shoulder, with the arm raised to steady and support them. The bulky weight had caused an almost lateral curvature of the lower cervical and upper dorsal vertebræ, with a certain amount of vertical rotation; the raised position of the arm depressed the superior angle of the scapula, and the muscles from the scapula to the vertebræ were elongated; consequently the first rib posteriorly was unprotected by the scapula, and the hard board-like edge or corner of the heavy truss striking him in this very region had evidently produced an incomplete fracture of this rib. There was no marked contusion of the soft parts, the pain was not superficial, and on careful manipulation could be localised just external to the tubercle of the first rib, and produced by pressure on this spot and by moving the rib in the supra-clavicular fossa or with the shoulder girdle. No crepitus could be distinguished.

These four cases occurred during the last six months I occupied

the post of casualty surgeon to the Queen's Hospital; and, as the number of casualties coming under my notice in that time would be at least 3,000, the proportion is very much smaller than one would expect from the percentage of specimens obtained from Guy's Hospital dissecting-room. It is possible that one or two cases may have been overlooked; the number, however, is sufficiently large to bring the injury into the domain of practical surgery, and to show the necessity of a careful examination of the first costal arch in all cases of shoulder injury exhibiting only the symptom of pain.—*Lancet, June* 30, 1888, *p.* 1291.

47.—ON DOUBTFUL FRACTURES OF NECK OF THE FEMUR.

By Lewis A. Stimson, M.D., Professor of Clinical Surgery in the University of the City of New York.

The circumstances under which a doubtful fracture of the neck of the femur presents itself are, in general terms, as follows: The patient has received a blow upon the hip, and this blow, if the patient is elderly, may have been slight; if he is young, it was probably violent. He complains of pain at and below the hip, both spontaneous and on motion, and additional pain is excited by pressure in front of or behind the junction of the neck and trochanter. He is able to raise the knee, perhaps even the foot, from the bed, and, exceptionally, may even be able to walk. There is no recognizable shortening, no change in the position of the trochanter, and but slight eversion, if any. Communicated movements of the limb are restricted in all directions, presumably by muscular opposition aroused by pain or the fear of it. Pressure upwards against the foot or knee, or inward against the trochanter, gives no pain; in two cases I have noted that the trochanter could be grasped and the body forcibly shaken without pain. I will quote two cases in illustration:—

A large, fleshy woman, sixty-four years old, fell while walking, and found herself unable to rise or to walk without help. She was brought to the Presbyterian Hospital, January 31, 1888. When examined on the following day, she complained of pain at the hip and along the outer and upper part of the thigh, was able to raise the knee, but not the foot, from the bed. There was no eversion of the limb; all communicated movements, including inversion and eversion, were restricted and painful. No deformity was recognizable on inspection, palpation, or measurement, except that the tissues in front of the neck of the femur seemed less depressible than upon the other side. Forcible pressure of the whole limb upward or of its upper part inward caused but little, if any pain; pressure in front of the neck near the trochanter was painful, and also pressure over a small area at the corresponding point behind. The diagnosis of probable fracture of the cervix

femoris was made, and Buck's extension with about ten pounds applied. After four weeks, when all pain except a little on deep pressure in front had disappeared, the dressing was removed; measurement failed to show any shortening; communicated movements were restricted and painful. After another week the patient was allowed to sit up, and attempt to walk a few steps. Three days later she complained of pain, and measurement showed half an inch shortening; there was distinct eversion, marked tenderness on pressure in front of and behind the neck, and spontaneous pain along the upper and outer part of the thigh. The extension was reapplied, and the patient is still (March 10th) in bed and comfortable.

The second case was that of a man aged forty, who fell on the ice in January, 1887, and was able to walk with help part of the way home. The record shows only that there was no deformity or shortening, and that he was able to raise the heel from the bed. The diagnosis was "probable fracture of the neck," and an extension apparatus was applied. In the third week he was free of pain and could move the limb so freely that he insisted upon being allowed to leave his bed. Two days afterward one inch shortening and marked eversion appeared, and the case thenceforward followed the usual course of fracture.

The symptoms which seem to me specially worthy of attention are the tenderness on deep pressure in front of and behind the outer part of the neck and lack of depressibility at the outer side of Scarpa's space. The latter sign was pointed out a few years ago by Hennequin, and I have found it constant in all well marked cases of fracture and frequent in the doubtful ones, and have learned to look upon it as an important aid to diagnosis. Localized tenderness on pressure in front and behind seems to me to have the same significance and value as in injuries of other bones—that is, to be strongly suggestive, but not demonstrative, of fracture. Spontaneous pain referred to the outer, anterior, and upper portion of the thigh has been so prominent a feature in four of my cases that it seems proper to ask your attention to it in the future. In none of the four did it appear to be the result of direct violence inflicted upon the region.

These are the only signs that point toward fracture, and they would probably, in most cases, be sufficient to put the surgeon upon his guard were it not for the absence of other signs upon which an unbroken experience has brought him to rely perhaps too implicitly. Shortening is so constant a symptom that, when absent in undoubted cases, it is sometimes thought necessary to invoke a possible asymmetry as an explanation, and in doubtful cases its absence is often deemed an almost certain proof of the non-existence of fracture. And yet a little reflection will show that it is in doubtful cases that shortening is not expected—cases in

which there is a transverse fracture of the narrow part of the neck without separation, and with preservation of the continuity of more or less of the periosteum, the "cervical ligament" of R. W. Smith, or those in which the line of fracture is irregular and oblique at the base of the neck without splintering or crushing, and with close interlocking of the fragments. Furthermore, the chance of error in measuring is great, and the precautions necessary to escape it are, I believe, not generally appreciated as fully as they should be, for a slight difference in the abduction or flexion of the limbs is sufficient to conceal a difference of half an inch in length.

Eversion, or loss of inversion, when absolute, depends upon the same change in the relations of the neck and shaft which produces shortening, and consequently its presence or absence has the same value and significance as that of the latter. As a matter of detail, eversion due to muscular relaxation and the unopposed action of the weight of the limb is often present in simple contusion as well as in fracture.

Two other signs upon which much reliance is placed in other fractures—crepitus and abnormal mobility—are commonly sought for in fracture of the neck, and, as they are frequently absent or unrecognizable, their absence is used as an argument against the existence of fracture. Concerning crepitus, it is sufficient to say that it is commonly not to be obtained by such manipulations as are justifiable in the examination, that it is not necessary to the diagnosis, that it should not be sought for, and that no inference should be drawn from its absence. Abnormal mobility is to be found only in the rotation of the limb, and is manifested when present either by the movement of the trochanter along the arc of a circle whose radius is less than normal, because of the shortening of the neck, or, in a more marked degree, by the rotation of the trochanter about the long axis of the shaft without change of place. I shall not spend any time upon the difficulties of the recognition of the first form; it is, in my opinion, a symptom of the study, not of the bedside; one owed more to deductive reasoning than to observation; it is sufficient for the present purpose to note that it cannot exist without the association of a deformity that is in itself sufficient to remove the case from the class of doubtful ones.

Loss of ability to use or even to move the limb is so common that the absence of total loss, or, in other words, the preservation of the ability voluntarily to flex the thigh in some degree, to raise the knee from the bed, is by some deemed sufficient evidence of the non-existence of fracture. Not only are the cases above quoted proof that this view is an exaggerated one, but abundant clinical evidence in opposition to it could be produced, and, not to spend further time upon this point, it may be categorically stated that even the patient's ability to walk is not an absolute proof of the non-existence of fracture, however improbable it may make it.

To sum it up, in any given case of injury to the hip the absence of shortening, eversion, crepitation, and abnormal mobility, and the preservation of function even to such an extent that the patient can still walk, do not constitute absolute proof of the non-existence of fracture of the neck of the femur; and on the contrary, if there be present tenderness on pressure in front of and behind the neck, the probability of fracture is sufficient to justify the treatment of the case as such for at least two or three weeks, or until that tenderness shall have disappeared. Lack of depressibility in Scarpa's space, and possibly persistent spontaneous pain referred to the outer and upper portion of the thigh, are strongly confirmatory of this probability.

Practically, therefore, all such doubtful cases should be treated as though fracture were certainly present. The patient should be confined to the bed, upon his back, and with sufficient extension efficiently to oppose the contraction of the muscles that attach the limb to the trunk. And if the tenderness on pressure persists for more than three weeks, or long enough to confirm its significance as an evidence of fracture, this confinement to the bed should be maintained for five or six weeks, and the patient should not attempt to bear his weight upon the limb for two or three weeks more.—*New York Med. Journal, April* 14, 1888, *p.* 401.

48.—NEW METHOD OF EXTENSION IN HIP-JOINT DISEASE.

By A. H. Tubby, B.S. Lond., F.R.C.S. Eng.

The objects aimed at in applying extension in disease of the hip-joint, whether by means of weights or splints of various descriptions, may be briefly summed up thus: firstly, the necessity of obtaining complete rest of the affected part, not only in the sense of freedom from movement, but also the prevention of that reciprocal irritation which ensues when diseased surfaces are in contact, in this particular instance inducing very severe pain and muscular spasm; and, secondly, when the inflammation subsides, to ensure as little resulting deformity of the spine, pelvis, and limb as possible. Many methods have been and are employed, but some of them are not simple and efficient, and others are open to grave objections. The plan which I venture to suggest fulfils all the requirements of early treatment, and is very simple in its application.

It is now generally agreed that to apply weight extension to the limb, regardless of its position, is not only useless, but often mischievous. The reason is not far to seek. If, in the stage of abduction and flexion, a weight be simply applied to the leg by means of a stirrup, a part of the force acts along the line of the tibia, and not that of the femur, and so is of little practical value, while the remainder, which is in the direction of the upper part of the limb, tends to produce negative rather than positive results.

We have to deal with an apparently extended thigh, but in reality there is flexion compensated by lordosis of the lumbar spine. Any force, then, which tends to bring the thigh in contact with the bed, without diminishing the lordosis, increases the tension of the anterior muscles of the thigh, and of the inflamed anterior ligaments of the capsule of the joint, upon which, as a fulcrum (to quote Mr. Barker's words), "the leverage of the femur will still further force the head into the acetabulum, and bring the diseased surfaces in closer contact."

Mr. Howard Marsh's plan in the stage of rigidity and pain is to raise the limb until all lordosis has disappeared, and thus, having ascertained its true position, to place it on an inclined plane the angle of which corresponds with that of the thigh, and then to apply weight extension. By using a sufficiently broad surface the limb can be accommodated in almost any degree of abduction or adduction. When all the muscular spasm has subsided, the limb is placed horizontally on the bed, and extension still maintained. But this method takes no cognisance of the accompanying lateral curvature of the spine, nor does it secure as much separation of the joint surfaces as possible. We know that in abduction the affected side of the pelvis is tilted downwards, and there is a lateral curvature of the lumbar spine with the concavity looking towards the sound side. By the application of one weight only the pelvis is still further tilted and the curvature increased.

The method which I have seen employed by Professor von Volkmann at Halle is the following. In abduction a weight is applied to each leg, but the *heavier* weight is on the *sound* side. What is the result of this? There is still extension on the diseased side as before, but there is another force acting on the pelvis from the sound side. This latter force, in the first place, tends to render the pelvis horizontal, and, acting lever-like with the lumbo-sacral articulation as a fulcrum, not only corrects the tilting, but also separates more thoroughly the diseased surfaces, and still further ensures a normal spinal curve when cure takes place. This happens more frequently without operation than we are led to suppose in general hospitals, and this statement is verified by the statistics of Mr. Howard Marsh. But Professor von Volkmann's plan is not applicable if flexion and abduction be present, but only when the former has disappeared.

I would suggest, then, that if we have to deal with a diseased hip, with much muscular spasm and excessive pain, a combination of the two methods should be employed—viz., to place the affected part on an inclined plane of such an angle that the lumbar spine is in complete contact with the bed, and then to apply a weight to each limb, but that on the sound side should be three or four pounds heavier than that on the diseased side. In the condition of abduction only, Professor von Volkmann's plan fulfils all require-

ments ; and in adduction, with the pelvis tilted upwards on that side, one weight only is needed to compensate the deformity. Weights can be readily extemporised from calico bags filled with shot.—*Lancet, Aug.* 18, 1888, *p.* 312.

49.—ON THE INFLUENCE OF POSITION ON FRACTURES OF THE LOWER EXTREMITIES.

By William Colles, M.D., Regius Prof. Surgery, Univ. Dublin.

I do not recollect to have found in the works of authors on the Practice of Surgery a satisfactory explanation of the fact that the change of posture from the horizontal to the sitting position is so injurious to patients labouring under fracture of any of the bones of the lower extremity. A moment's consideration will, however, fully explain the cause and effect.

If we examine a person lying in the horizontal position we find the head of the femur at least three inches above the tuberosity of the ischium ; whereas, when sitting up, the femur is at right angles with the axis of the body. These two points are on the same line, perpendicular to the femur, one above the other.

As the body moves on the extremity of the ischium in assuming the sitting posture, the head of the femur must be pushed downwards for two or three inches. This must influence the point of weakest resistance—the seat of fracture. This, if the fracture be oblique, will have the tendency to cause the fragments to slide one over the other ; or, if the fracture be transverse, and the fragments accurately applied to each other, will force them to assume a more or less obtuse angle.

Hence, I think we cannot be too careful in frequently inspecting the position of the limb, especially while the union is yielding and soft, and offers an objection to putting up these fractures in immovable apparatus, which can only conceal the deformity, but cannot prevent it.—*Dublin Journal of Med. Science, Sept., p.* 192.

50.—ON LOOSE BODIES IN THE KNEE-JOINT.

By T. Pridgin Teale, M.A., F.R.C.S., Surgeon to the Leeds General Infirmary.

I beg to record the following cases, which tend to corroborate the opinion of those who think that occasionally, as the result of injury, a piece of articular cartilage with a corresponding portion of bone may become detached, and give rise to the ordinary symptoms of loose cartilage. Further, such a loose body may be removed from the joint, with as complete a recovery as in the case of simple nodule, of cartilage. The first, the case read by my father before the Medico-Chirurgical Society (December 11th, 1885), has been most fully and adequately quoted by Mr. Howard

Marsh, in the Journal of April 14th. In this case a blow on the knee was followed in twelve months by sudden lameness and the discovery of a loose body in the joint. It was unfortunately proved post mortem that the loose body was a piece of articular cartilage and bone which accurately fitted a shallow cavity in the outer condyle of the femur.

The next case was under my own care at the Leeds Infirmary, and was as follows: J. J., aged 25, a mechanic, on December 4th, 1881, caught his foot in a rut, giving the knee a severe wrench,

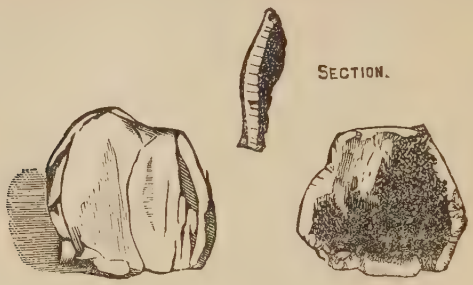


Fig. 1.—Smooth surface covered by articular cartilage.

Broken surface showing cancellous bone.

Fig. 2.—Posterior surface of patella, as judged by touch.

and fell on his hands and knees. By no questioning could any evidence be obtained tending to show that the fall was the result of some foreign body in the joint. With great difficulty, by hopping and leaning against the wall, he reached home. The joint was much swollen immediately, and excessively painful. The patient said that he felt something loose in the joint. Next day, December 5th, he was admitted into the Leeds Infirmary. The joint was swollen, painful, tender to the touch, and especially to pressure over the inner margin of the patella. The house-surgeon, Mr. Edward Ward, thinking that the case might be one of displaced semilunar cartilage, tried the usual manipulation of flexion and extension,

with the effect of producing great pain and no amelioration. December 14th. The dresser discovered a loose body in the joint. December 21st. The joint was opened, and a loose body, consisting of cartilage and a thin layer of bone (Fig. 1) was removed. On exploring the joint with the finger, there was discovered on the posterior surface of the patella a shallow cavity which exactly corresponded in size and shape with the piece of cartilage and bone removed (Fig. 2).

The patient recovered well; sat up on January 11th, left the hospital on the 14th (the twenty-fifth day after the operation), and on March 12th came to the hospital. "There was no trace of a limp. He could flex the knee to a right angle, and was able to do heavy work with perfect ease."

The next case was under the care of my colleague, Mr. Atkinson, with whose permission it is published. In this there is an absence of any evidence of preceding injury.

J. R., a patient in the Leeds Infirmary. On October 7th, 1886,

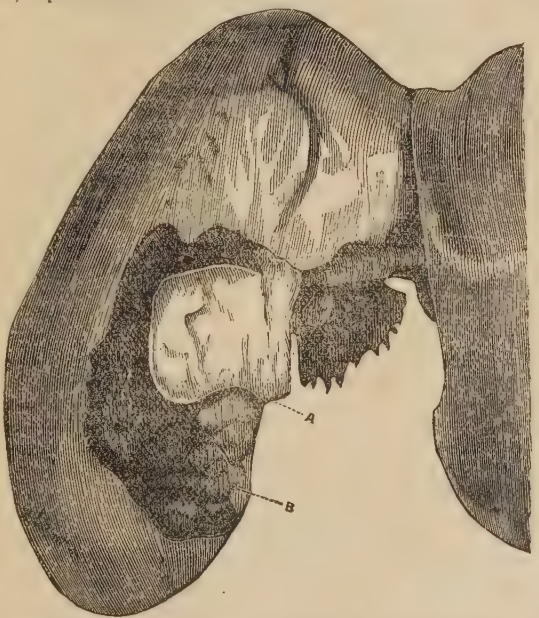


Fig. 3.—A, detached cartilage; B, surface of femur, showing bone, uncovered by cartilage.

Mr. Atkinson removed two loose cartilages from the left knee and one from the right. There was a history of frequent attacks of pain and swelling of both knee-joints extending over a period of seven years, but not of any severe injury. January, 1887. He was again admitted into the Leeds Infirmary, as another cartilage had been discovered in the right knee. The cartilage was removed.

On January 31st the knee was excised, and the following condition was discovered (Fig. 3). A piece of articular cartilage about three-quarters of an inch square was partially detached from the external side of the inner condyle, being attached chiefly at the upper part of its internal border, close to the inter-condyloid notch, by a portion of cartilage and synovial membrane forming a sort of hinge, which allowed the piece of cartilage to flap backwards and forwards. The patient recovered.—*British Med. Journal, May* 26, 1888, *p.* 1109.

51.—ON THE TREATMENT OF TUBERCULAR DISEASE OF THE KNEE JOINT BY ARTHRECTOMY.

By Bilton Pollard, B.S., F.R.C.S., Assistant Surgeon to University College Hospital, London.

[Mr. Pollard gives the narratives of nine cases of Tubercular Disease of the Knee occurring in young children, in all of which, save one, arthrectomy was performed with a successful result to life and limb. In the fatal case the child died on the twenty-second day after the operation, from some obscure general condition not obviously tubercular in nature. Commenting upon the whole series of cases Mr. Pollard says:]

The extent of the disease in each case amply warranted some radical treatment. In all the cases the synovial membrane was greatly thickened, and contained cheesy foci. In four there was extensive tubercular disease of the bones; and in three others the articular cartilages were diseased. In all, the disease was progressing so rapidly that some operation was necessary, and, considering the early age of the patients (four were three years of age, one four years, two five years, and two seven years), the final results of excision would have been most pitiable. Thanks to improved methods of treatment, there is no reason to anticipate failure in the growth of the limbs in the cases I have recorded. In addition to the free exposure of the cavity of the joint and the complete removal of the diseased tissues, which should be as deliberately dissected from the muscles, ligaments, and bones, as in anatomical dissection, there are two points which deserve the greatest attention: One is to reduce the loss of blood to a minimum, and the other is to secure absolute rest during the healing process. All loss of blood during the operation can of course be avoided by means of Esmarch's tourniquet, but a great deal may be lost

when the tourniquet is removed in order to secure the ends of bleeding vessels, for there is always a very free oozing of blood from the numerous small vessels which have been divided. In order to obviate this, Esmarch has advised the application of the dressing with firm pressure before the tourniquet is removed. Since the introduction of wool dressings this method has been employed with much success, especially in combination with vertical elevation of the limb, which has been shown by Lister to cause very marked contraction of the arteries. But even with these precautions a good deal of blood may be lost by soakage into the wool. The method employed in most of the cases recorded above was as follows. After the removal of the diseased tissues the tourniquet was taken off for an instant, and all the spurting vessels were clamped. The tourniquet was then quickly reapplied so as to check the oozing of blood during the remainder of the operation, which was completed after the clamped vessels had been tied. The wool dressing was applied with a moderate degree of pressure, and the limb raised to a right angle with the body. The tourniquet was then permanently removed. In order to secure perfect rest during the healing process, an efficient splint must be applied, and it matters little whether this be a Thomas's knee splint, a metal back splint included in the dressing, or plaster-of-Paris applied outside the dressing. Either of the two former methods have the advantage that, if the dressing needs removal before the joint is healed, it can be readily effected. But to secure perfect and prolonged rest, an attempt should be made to obtain healing under a single dressing. To achieve this result drainage tubes should be dispensed with, for their employment necessitates a change of the dressing for their removal; and provided that the joint be thoroughly aseptic, ample drainage may be secured by leaving a portion of the wound unsutured on each side of the joint. This plan was adopted in five of the cases, with the best results. If the temperature rises, however, or if the joint is painful, the dressing should be at once removed, and if necessary tubes should be inserted.

Two modes of laying open the joints were employed. In six cases the curved incision passing across the joint and dividing the ligamentum patellæ was adopted. In five of these the wound healed by first intention without suppuration; the sixth patient died either from septic infection or iodoform poisoning. In three cases the H-shaped incision, with transverse section of the patella, was employed; of these, one healed by first intention under a single dressing; one suppurated a little around a suture in the patella; and one broke down and suppurated freely; but all ultimately did well. Whichever incision be used, it is essential that the lateral cuts should extend to the top of the synovial pouches, in order to allow of thorough removal of the synovial membrane.

Volkmann's method by division of the patella appeared to me preferable, as bone unites more firmly than ligament. The wound is, however, more complicated, and in my experience does not heal so well as the curved incision through the ligamentum patellæ.

It is interesting and important, from an economical point of view, to note the success of permanent wool dressings in these cases. In six cases there was absolutely no suppuration. In five of these no tubes were used, and in two of them the first dressing was not removed for six weeks; in one it was changed at the end of four weeks; and in another at the end of three weeks. In one of the six cases tubes were employed. The dressing was changed and the tubes removed at the end of three weeks; at the second dressing, more than five weeks later, the joint was soundly healed. In three cases suppuration occurred, but in two of them the dressings were removed on the day after the operation and tubes inserted, as the temperature was high. In the third case, which suppurated, tubes were employed from the first; the amount of pus was very slight, only a stain on the dressing, which was changed for the first time on the fourteenth day, and the third dressing did not require removal until the forty-ninth day after the operation.

The ultimate results cannot as yet be stated, but the present condition of the patients is very satisfactory. Five of the children had perfectly sound joints after periods of eleven and a half, nine, seven and a half, seven, and six and a half months after their respective operations; and in only one of the nine cases has there been any reccurrence of the disease. The patient referred to has a tubercular focus in the scar; but he has also, since the operation developed, tubercle of the cervical spine, and the same disease in his lungs has extended.

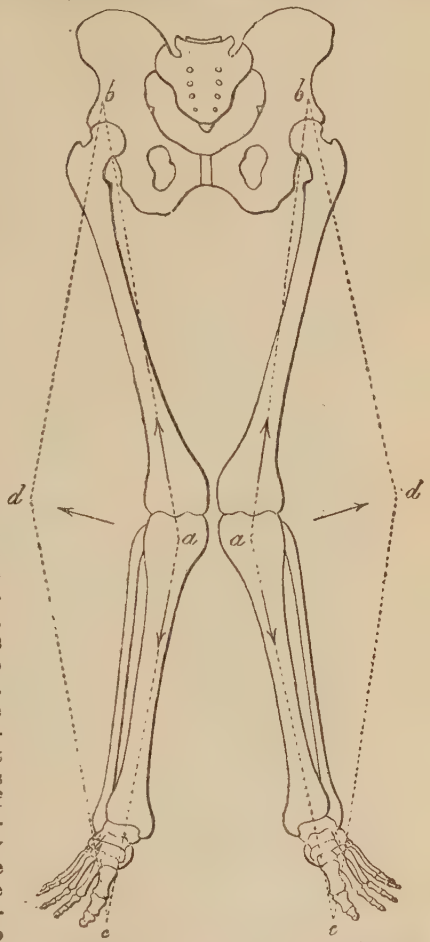
The greatest drawback to the operation is the tendency to flexion at the joint, which occurs after artificial support is left off. In order to check this, the patients whose cases are now recorded are, at periods ranging from seven to twelve months after their operations, still wearing Thomas's splints. It remains to be seen how far the increased strength of the front of the joint, which is secured by the trans-patellar operation, will counteract the tendency to flexion.—*Lancet, June* 23, 1888, *p.* 1241.

52.—ON THE MECHANISM AND TREATMENT OF KNOCK-KNEE AND FLAT-FOOT.

By T. S. Ellis, M.R.C.S., Surgeon to the Gloucester Infirmary.

Preventive surgery, though it sounds unfamiliar, is, I submit, a legitimate expression. As preventive medicine sometimes teaches how to cure diseases by presenting, in specially pronounced form, the conditions under which they do not occur, so a study of the means by which deformities are prevented may teach us how to

deal with them when actually existing. Let me illustrate this by two kindred deformities having much in common, knock-knee and flat-foot, as acquired independently of paralysis and of bone disease. Both are exaggerations of naturally existing curves. In each the sequence of events is the same—failure of muscular support, yielding of ligaments, altered contour of bone surface. And in each case, also, the leading indication for treatment is the same—to strengthen, by action, the muscles which, in the full exercise of their functions, prevent these deformities.



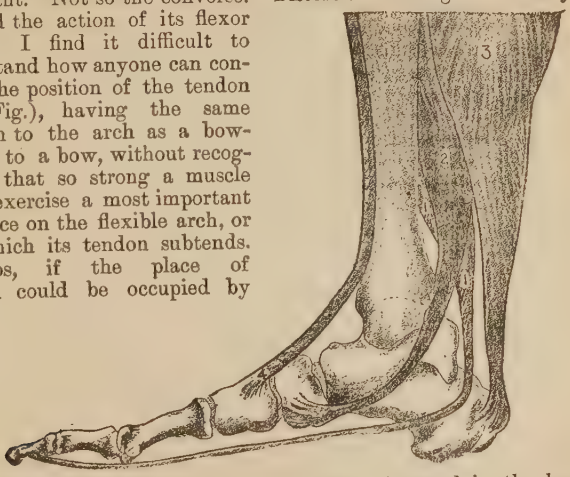
In the case of knock-knee, the direct influence of muscular action, in cure or prevention, does not seem to be recognised at all by writers. Of the two most recent known to me, Mr. Owen (Dictionary of Surgery, Genu Valgum) refers to exercise only to forbid it; and Mr. Arbuthnot Lane (Guy's Hospital Reports, 1887) advises it only because by this means "the firmness of the joints and ligaments, and the density and resistance of the osseous system, will be improved." That spontaneous recoveries do sometimes occur is well known, and that muscular exercise will completely remove the deformity I have myself seen, although unable

until recently to explain how. This I will now endeavour to show. According to the parallelogram of forces, a well known law, if a force acting in the line *a* to *b* (see diagram) be opposed by a force acting in the line *a* to *c*, the resultant will be in the diagonal of the completed parallelogram, or towards *d*. But all the muscles attached to the leg bones below and to the pelvis above do act in the line *a* to *b*, while the weight of the body acts in the line *a* to *c*. These muscles draw the knees towards a straight line between the foot and the pelvis, when, as in the erect position, the foot is a fixed point. It is important, also, to realise that the peroneus longus, which abducts the foot when free to move, can only abduct the knee when the foot is fixed; so, also, the gluteus medius, which abducts thigh and leg together, can only act on the knee when the foot is fixed. These effects are fully seen in a wooden model (shown), where the part representing the body is kept upright by fixed guides, as it moves up and down, when the effect of the various muscles in correcting knock-knee is demonstrated. This is done by means of strong elastic bands, the parts of the model representing the thigh and leg being united by hinges.

I am fully mindful that in the body, the muscles attached to the leg and to the pelvis are attached also to the thigh, but this does not affect the result described. I recognise, also, that the downward thrust on the knee acts in the line *b* to *a*. This, too, is immaterial, the muscular force being strong enough to overcome it. My contention is that the muscles concerned in raising the body to the full height, and those which draw down the pelvis in opposition to resistance from above, pull the knee towards a straight line between the foot and the pelvis, and that their agency ought to be utilised in correcting knock-knee. In actual practice I have found the treatment thus indicated to be highly satisfactory, so much so as to justify a confident opinion that it would be found to be sufficient even for the worst cases. And indeed, as appears to me, if it be admitted that failure of muscular support leads to yielding of ligaments and altered bony surfaces in joints; that vigorous use of muscles makes them strong and taut, even when only in passive contraction; that, in this condition, they not only relax, and thus renew the over-stretched ligaments, but also, by exerting constant pressure on the bony surfaces of the joints, remodify their altered contours—if this be admitted, and if the explanation of knock-knee which I have given be accepted, then I claim that such success accords with reasonable probability.

This view of knock-knee, its prevention and cure—never, so far as I know, given before—I offer now with the more confidence and the more pleasure because it was at a meeting of this Branch, nearly fourteen years ago, that I first pointed out that the arch of the foot is formed, is maintained, and may, when destroyed, be restored, by muscular action. I then narrated how, after an acci-

dent which had torn through the calcaneo-scaphoid ligament in my own foot, I had myself been the subject of flat-foot in the worst form for more than six years; that, in seeking to discover by what means flat-foot is in Nature prevented, I had, by an observation on a horse, been induced to regard it as a universal law that ligaments liable to great strain are supported by muscles, and from that law had deduced the probability that, if I could only renew the function of the flexor longus pollicis, I might restore my flattened foot. I then described how, after six months' persevering application of the principle involved, a foot which for six years had never risen to tiptoe had become able to bear the strain of hopping over a footstool. To this I may now add that it has never since given me serious trouble, although the original displacements are still evident. I did not, however, at that time convince anyone that my recovery was wholly due to exercise, and I had not the boldness to send my paper to a medical journal. Three years later I restated my views in a pamphlet of which Mr. Holmes gave a favourable notice in his Principles of Surgery on the first appearance of that book. To those views I have ever since adhered, maintaining, as leading principles in relation to flat-foot: "For prevention promote, for restoration renew, the functions of the flexor longus pollicis." This being done, action of the other important muscles will be attendant. Not so the converse. Distortion of the great toe may suspend the action of its flexor alone. I find it difficult to understand how anyone can consider the position of the tendon (see Fig.), having the same relation to the arch as a bowstring to a bow, without recognising that so strong a muscle must exercise a most important influence on the flexible arch, or arc which its tendon subtends. Perhaps, if the place of tendon could be occupied by



the fleshy mass of the muscle, and the tendon inserted in the leg, the effect of action on the arch would be better realised. We call

it the flexor of the great toe. The far more important and far more common action is to assist in raising the body, acting from the straight toe as the fixed point. The tendon is, in effect, the most important of those forming the counterpart of the single tendon, which in the horse passes round the hock (the true heel), and is inserted at the toe. Just as the tightening of the tendon of the "flexor perforans" in the rearing position of the horse, the tiptoe of man relieves the enormous strain on the ligaments binding together the bones between the hock and the hoof, so do the corresponding tendons relieve the ligaments of the human foot as the heel is raised in every step. And, further, insufficient support of these ligaments will lead to "straight joints" in one case, as it does to the counterpart, flat-foot, in the other. I cannot describe how much I owe to this bit of comparative physiology applied to surgery.

I have recorded in the Lancet of February 9th, 1884, with my own case, that of a farrier's apprentice, who was under my care in the Gloucester Infirmary some fifteen years ago, with feet so flat and so painful that he could not walk across the ward. He was put in the way of proper exercises, and ultimately became a distinguished dancer in the 2nd Life Guards. I have also there described (September 25th, 1886) the best exercise I know for producing a speedy result in a bad case of flat-foot, and I now say the same in regard to knock-knee. It consists in raising a weight by means of a cord running over pulleys. The object is to bring the foot to extreme tiptoe, the knee and hip to full extension (this with the inspiration, so as to get the benefit of the Silvester method of artificial respiration added to natural breathing); then, after a pause, to suddenly and vigorously draw downwards. Turning a wheel, placed so high that the handle is with difficulty reached when at the highest part of the cycle is a similar movement, available if the patient be strong enough, and having the advantage of being less irksome. Indeed it may be made to combine useful work. So also may pumping, if the handle be placed high enough. Bell-ringing is also an excellent exercise. I cannot imagine it to be possible that persons habitually engaged in such strictly natural occupation as reaching up to and drawing down the boughs of trees would be knock-kneed or flat-footed. It is remarkable that no such movement exists in the ordinary occupation of life; it has no place in ordinary gymnastic exercises, and, so far as the book of the Zander Institute shows, is not used even there. On its value of stimulating functional activity this is not the time to insist. Everything, however, which promotes the general health is important; so is everything that promotes nutrition of the muscles, dry friction, massage, and so on. Still, I would insist, on muscular action reliance must after all be mainly placed. In those forms of it described, especially in the first, that great

impediment to exercise in these cases, the weight of the body, is partially counter-balanced; but good walking must be the aim, in view of a permanent cure, and should as soon as possible be practised in moderation. Let the toes be pointed downwards and forwards—the position of strength and therefore of activity; not outwards—the position of relaxed ligaments and, therefore, of rest. Let the heel be vigorously raised at every step, the knee being fully straightened. There is nothing strained in this, it is simply good walking. Standing should of course be avoided unless it be with constant springing up on the toes, an excellent exercise. As far as possible, especially in the early stages of treatment, all exercises should be done with bare feet. Remember that the natural plane of movement of the great toe is oblique, downwards and inwards, and take care that neither boots nor socks interfere with it, as will probably have been the case. Of the great importance of this point I have spoken in an article on Deformities of the Great Toe, in the Journal of May 20th, 1887. In the treatment of flat-foot I never use supports of any kind. I believe that they do more harm in preventing free action of the short flexor muscles than they do good in propping up the arch. During many years I have seen the worst of cases recover without them. I am equally certain that for knock-knee they are in principle wrong, and in practice unnecessary. So also of tenotomies in either deformity. Osteotomies and resections I can only regard as unwarrantable mutilations.—*British Med. Journal, June* 30, 1888, *p.* 1377.

53.—ON THE TREATMENT OF CLUB-FOOT BY IMMEDIATE RESTORATION OF THE PARTS TO THEIR NORMAL POSITION AFTER TENOTOMY.

By W. J. Walsham, F.R.C.S., Surgeon-in-Charge of Orthopædic Department at St. Bartholomew's Hospital, London.

Setting aside the question of syndesmotomy, the open division of ligaments and tendons, and tarsectomy, there may, as regards the restoration of the foot after tenotomy, be said to be three chief methods in vogue—(1) the slow, in which the ends of the tendon are placed in contact for a few days, and after union has taken place the new material uniting the ends is slowly stretched; (2) the rapid, in which a slight interval is left between the ends of the tendon and the foot placed in plaster-of-Paris for a week, after which the plaster is reapplied twice or thrice at intervals of about a week, the foot on each occasion being forced into a better position; and (3) the immediate method, in which a considerable space is left between the ends of the divided tendon, the foot being at once secured in the normal position in plaster-of-Paris. That in the employment of the last method much time and consequently expense is saved the patient is beyond question. It

is therefore of importance to determine whether it is as safe, and the results obtained by its use are as good as those which follow the methods of gradual and rapid extension. Although I have only recently become a convert to the immediate plan, I have treated a considerable number of cases in this way in the orthopædic department at St. Bartholomew's Hospital. It may therefore be of interest, since attention has been drawn to the subject in the article above referred to, to make known the result of my experience in the immediate method.

On my appointment to the charge of the department, now nearly six years ago, I at first followed the teaching laid down in the text-books on orthopædic surgery, and employed exclusively the slow method of treatment. The delay and difficulty, however, in obtaining the expensive apparatus necessary for such treatment in the class of patients who attended at the hospital was such that I soon abandoned the use of all forms of Scarpa's shoe and the like, and substituted for them plaster-of-Paris. I still, however, continued the plan of placing the foot in the deformed position with the ends of the divided tendon in contact until the puncture had healed and reparative material had been formed between them. As my patients were only seen once a week, it was frequently found, on removing the plaster bandage, that the reparative material was so firm that considerable difficulty was experienced in stretching it, and thus improving the position of the foot. Indeed, where the deformity was extreme, the progress made was often so slow that the tendon had again to be divided before the restoration of the foot to its normal state was completed. To overcome this difficulty the foot was, after the tenotomy, placed in a slightly improved position, with the ends of the divided tendon a very little apart, since I still feared that, if much space was left between them (as taught in the authoritative works on the subject), they would not unite, or that the uniting medium would remain weak and elongated, and a worse condition result than that for which the treatment had been undertaken. As it was found, however, that when the ends were slightly separated abundant and firm material was produced between them, and no evil of any kind followed the practice, confidence was gained, and little by little the space left between the ends was increased, till finally the foot was at once placed in the normal position, leaving as much as half an inch to three-quarters of an inch or an inch, or even more, between the divided ends. I briefly record this experience as showing that I have not hurriedly abandoned the until recently orthodox method of the slow treatment of talipes, and that the so-called rapid method was not, if I may so speak, given up, but gradually became more and more rapid, till finally it passed by insensible degrees into the immediate treatment.

That the rapid method is a great improvement over the slow

there can, I think, be little doubt, and that the immediate is a still further improvement over the rapid I feel almost equally sure, although on this point I do not like to be dogmatic, as my cases thus treated, though numerous, are far less than those treated by the rapid plan. Accurate notes are kept by my dressers in the department of all the cases there admitted, and I can so far affirm that hitherto there have been no untoward results. In no case has the tendon failed to unite, and in no case has the uniting material remained weak and elongated. I have looked over my note-books, and may quote the following as the general wording of the note on the removal of the plaster bandage: "Abundant formation of firm reparative material between the divided ends; foot in excellent position." My plan has been to divide the tendon; break down any adhesions by forcible but gentle wrenching; close the puncture in the usual way with a dossil of lint soaked in carbolic oil or with iodoform gauze; carefully enclose the foot in a domett or cotton-wool bandage according to the age of the patient, and secure it in plaster-of-Paris. For infants a cotton-wool bandage is invariably used, and with this there need be no fear either of disturbance of the circulation of the foot or the formation of pressure sores. Unless any swelling of the toes should call for earlier removal, the plaster is left on for ten days or a fortnight, to ensure the parts being kept at perfect rest and the formation of abundant and firm reparative material. The advantages of the immediate method as well as of the rapid method over the slow are—(1) great saving of time, and (2) the doing away with the necessity of an expensive extension apparatus. The disadvantages which I found attending the rapid, but which do not apply to the immediate, are—(1) that considerable pain is often caused by the force which has to be employed in stretching the uniting material at each changing of the plaster, and (2) that in severe cases the reparative material cannot always be stretched sufficiently to overcome the deformity, and it is occasionally necessary to re-divide the tendon. I am aware that the immediate treatment is advocated by several excellent surgeons, but as far as I know it has not met with general favour in this country.—*Lancet, May* 19, 1888, *p.* 971.

54.—CASE OF OSTEO-PLASTIC RESECTION OF THE FOOT BY THE METHOD OF MIKULICZ.

By Sir W. MacCormac, F.R.C.S., Surgeon to St. Thomas' Hospital.

The lad whose case I wish to bring before the Medical Society of London this evening is now sixteen years old. On March 12th, 1887, I performed the operation introduced by Mikulicz, of Prague, and Wladimiroff, of Kasan. So far as I know, it has not been previously performed in England, and as now more than a year has

elapsed since the date of the operation the Fellows of the Society will be able to estimate the amount of usefulness attained by the limb. I would wish, therefore, to invite the opinions of my surgical colleagues upon the value of the operation in suitable cases. The following notes were taken by Mr. C. H. James, the dresser.

W. B——, aged about fifteen, a clerk, much emaciated, with a pasty face and a dull suffering expression, was admitted to St. Thomas's Hospital on January 29th, 1887. There is no history of phthisis, and both parents are alive and well. Six months before, the boy fell downstairs and sprained his left ankle. He was treated as an out-patient with strapping and plaster-of-Paris splints without improvement. One abscess had formed behind the inner malleolus, which was opened, and another in the sole of the foot. Swelling was very prominent on each side of the tendo Achillis. The sinuses led down to diseased bone, and it was evident the joint between the astragalus and os calcis was extensively diseased. The parents would not at this time consent to any operation, so the sinuses were laid open, the granulation tissue scraped away, and drainage tubes inserted. But the general condition of the patient became much worse, and there was now evidence that disease was beginning in the ankle joint. The parents very reluctantly consented to an operation, stipulating, however, that the foot must not be amputated. The soft parts covering the heel were much infiltrated and riddled with sinuses; but, considering the disease to be limited to the os calcis and astragalus and involving secondarily the joints adjacent, Sir William decided to perform the following operation:

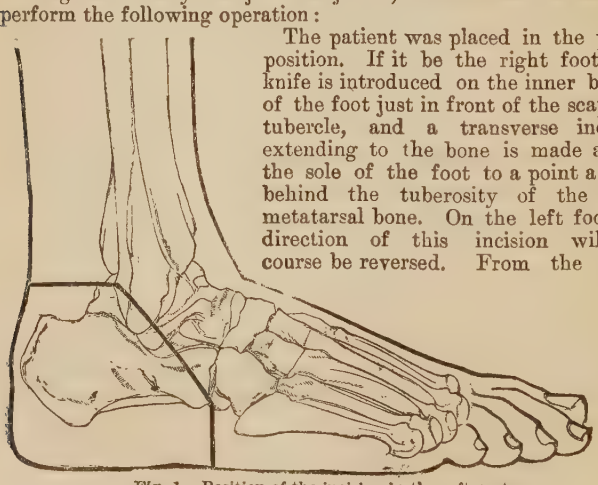


Fig. 1.—Position of the incision in the soft parts.

The patient was placed in the prone position. If it be the right foot, the knife is introduced on the inner border of the foot just in front of the scaphoid tubercle, and a transverse incision extending to the bone is made across the sole of the foot to a point a little behind the tuberosity of the fifth metatarsal bone. On the left foot the direction of this incision will of course be reversed. From the inner

and outer extremities of the wound incisions are prolonged upwards and backwards over the corresponding malleolus, and their extremities (Fig. 1) united by a transverse cut across the back of the leg made down to the bone at the level at which it is to be sawn, usually immediately above the joint surface of the tibia. In cases where a larger removal of the tibia and fibula is required, the lateral incisions must be more oblique and the pos-

Fig. 3.—Stump after Mikulicz's osteo-plastic resection.

Fig. 4.—Convenient form of boot applied to the stump.

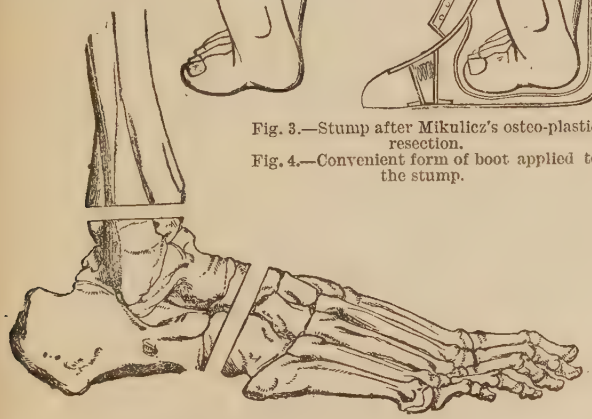


Fig. 2.—Line of section of the bones.

terior transverse cut made at a higher level. The ankle joint is now opened from behind, the disarticulation completed, and after flexing the foot the soft parts are carefully separated in front until the medio-tarsal joint is reached, at which disarticulation is effected as in Chopart's operation. The heel portion of the foot, consisting of the astragalus, calcis, and the soft parts covering them, is thus removed. The articular surfaces of the tibia and fibula with the malleoli are now sawn off, as well as those of the cuboid and scaphoid bones. (Fig. 2.) The anterior portion of the foot remains connected with the leg by a loose bridge of soft parts. The blood supply appears to be ample, for almost directly after the amputation blood issued freely from the distal end of the divided plantar arteries. All hemorrhage having been arrested, the foot was brought into a straight line with the leg, and the cut surfaces of bone were sutured together with kangaroo tendon. The attempt to discover and unite the divided ends of the posterior tibial nerve failed on account of the sodden condition of the soft parts. Suitable dressings and a plaster-of-Paris splint were applied, the toes being brought into a position of complete dorsal flexion.

I need not detail the after-treatment; the boy made an excellent recovery, and a firm bony union eventually took place. Sensibility began to return in the sole of the foot in about a month, and this gradually became more complete. In December the boy returned to the hospital to be fitted for the boot he now wears. (Fig. 4.) He can stand or walk with ease and comfort. The left limb is half an inch longer than the right. (Fig. 3.) The sensibility of the left foot appears to be perfect, showing that the divided nerve ends have become united. The toes are mobile. I regard such a result as this, obtained under very unfavourable circumstances, an exceedingly satisfactory proof of the utility of the operation. Wladimiroff, of Kasan, in 1872, appears to have been the first to perform the operation; but Mikulicz first published an account of it in Langenbeck's "Archiv," 1881. The functional result, as I think this case will show, is an admirable one. An artificial pes equinus is procured, the object being to preserve the toes and metatarsal bones, which are sacrificed in other amputations of the foot. These are brought into a straight line with the leg, and the toes bent at a right angle, so that the patient walks on the ends of the metatarsal bones covered by the thick pads of tissue which invest them; a broader surface of support is provided than is afforded after either Syme's or Pirogoff's amputations, and there is some elasticity of foot left. (Fig. 3.) In ordinary cases the limb will be longer by nearly an inch, which can be readily compensated for by a thicker sole to the other boot. As regards indications, it may be at once conceded that the operation will prove better adapted to cases of injury, gunshot injury more especially, than for those of disease. My experience of this case, however, would

tempt me to adopt the procedure again in any case where the bones of the heel and the soft parts covering them were extensively damaged or diseased, the anterior half of the foot remaining healthy.

[The patient was exhibited to the Fellows. He walked up and down the room, both with and without his boot, with great ease and evident satisfaction to himself. The union is quite solid, and he now attends to his daily work without any inconvenience.]—*Lancet, May* 5, 1888, *p.* 866.

55.—ON TABETIC (CHARCOT'S) JOINT DISEASE.

By Parker Syms, M.D., New York.

Arthropathia tabidorum, or Charcot's joint disease, is an affection of the joints found in a small number of tabetics, occurring almost invariably in the initial stage, seemingly dependent on trophic disturbance. It is not of an inflammatory nature. It is characterized by a sudden and painless onset, by a marked swelling of the entire limb, which quickly subsides except around the joint, and finally by very rapid and complete changes in the bony and soft structures of the joint, producing remarkable deformity. In some cases there may have been no general swelling, and a spontaneous fracture of some portion of the bone may be the first indication of the disease; or an enlarged and deformed joint may be casually found to exist. I shall not attempt to give an historical account of the literature and elucidation of this very interesting disease. To Charcot, of Paris, belongs the credit of having first called attention to the condition and to its relation to tabes. Many others have contributed papers on the subject and reports of cases. The most noteworthy discussion of the disease was that which took place in the London Clinical Society in 1883.

The disease is so rare, and so few opportunities have been given to one man for its study, that great diversity of opinion exists on many points in connection with it. This is most strikingly brought out when we come to the question of its cause and of its connection with locomotor ataxia. The proportion of tabetic subjects having this form of joint disease is unknown. Both sides of the body are affected with equal frequency. It often affects many joints. In 109 cases collected by Weizsäcker, 169 joints were diseased. The large joints are chiefly involved. The disease occurs in the joints of the lower extremity much more frequently than in those of the upper, in the proportion of nearly four to one. Weizsäcker's collection of cases is a very good one, and may be used as a basis for statistics. The 169 joints were as follows: Knee, 82 (2 were doubtful); hip, 31; shoulder, 21; tarsus, 13; elbow, 10; ankle, 9; carpus, 4; spine, 1; joints of lower extremity, 133; joints of upper extremity, 35. Syphilis has been observed by different men

in such extremely varying proportion of cases that some attach very little importance to it, while others think we may come to regard it as the cause of tabes.

The structural changes in this disease are very marked. They involve both the bone and the soft parts. The synovial membrane is usually pale, though sometimes congested. The capsule is thickened by connective-tissue increase, and there is often a very marked hyperplasia of the surrounding tissue, forming a large part of the deformity. The entire capsule may be replaced by a connective-tissue mass. There is always an effusion into the cavity of the joint and into the deep fasciæ. It consists of pure serum and lacks the characteristics of inflammatory exudation. The ligaments are stretched and the cavity of the joint is over-ample, as after a chronic hydrarthrosis. Ossification occurs in the tendons, ligaments, capsule, or on the articular surfaces. These bony masses also occur as free joint bodies. The changes in the bones may be divided into two sets of cases, the hypertrophic and the atrophic; a combination of the two processes is common. In the atrophic form the epiphyses are more or less absorbed. The entire articular surface may be changed into a rounded extremity like a drumstick, retaining some of its natural coverings. In this class of cases the disability is great, owing to the instability of the joint from want of surface. In the hypertrophic form there is a great increase in the size of the bone ends, depending on large outgrowths of bone on the epiphyses. These masses, as stated above, occur also on the soft parts, and are often to be found on the shaft. In this form the deformity is always great, but the function of the joint is usually better than in the atrophic cases. Spontaneous fractures are of common occurrence. They involve sometimes the shaft of the bone, sometimes the bony processes. Fractures of the shaft unite with a very good callus. The microscopic changes, according to Blanchard, are those found in osteitis rareficans. The lamellæ are broken down or absorbed, so that several canaliculi are converted into a large canal. The bone plates are thinned, and the canals are filled with fat. According to Regnard, these bones are changed chemically, as in osteomalacia, the phosphates being decreased to 11 per cent. and the fat increased to 37 per cent.

The symptoms are well marked. The indications of tabes cannot be many nor prominent early, as the joint disease begins in the initial stage. The constant symptom of tabes present is analgesia, especially of the deep parts. Usually the patellar reflex is wanting, and we can add the Argyll-Robertson pupil, and more or less inability to stand or walk without the aid of sight. The various deformities of the joint which may be found need not be described. The sudden onset, the lack of pain, and the rapid destruction of the joint are diagnostic. They certainly distinguish it from

arthritis deformans, the one disease with which it is likely to be confounded. Arthritis deformans is much slower in its progress, is always the cause of pain, and some motions of the joint are always restricted, while in Charcot's disease the joint is usually abnormally movable in every direction. Of course the nervous symptoms must help the diagnosis. The patient's disability is usually very great, though in all but one of the cases I have seen they have been able to walk with a cane.

I shall now mention some of the theories as to the origin of this disease. It has been maintained: 1. That it is purely a mechanical condition caused by the abnormal gait of the patient, due to locomotor ataxia. 2. That it is due to a direct trophic disturbance of central origin—a certain point being involved for a corresponding joint; or that there is one centre responsible for the nutrition of joints. (Buzzard suggests that this hypothetical point is in the medulla.) 3. That it is not a peculiar disease, but is (*a*) arthritis deformans coincident with the tabes, or (*b*) a purely syphilitic joint in the same connection. 4. That the serous effusion is due to trophic disturbance, and that the changes in the bone are due entirely to the pressure of the effusion and the consequent anæmia of the periosteum. (Macnamara.) 5. That it is due entirely to a traumatism and that the primary changes are inflammatory, but, owing to analgesia, the joint is not kept at rest and progress is different, merely on that account, from ordinary traumatic arthritis. 6. That it is due to a direct trophic disturbance, like ulcus perforans, not of central origin, but due to atrophy of the peripheral nerves. (Weizsäcker.) I understand this to mean that only the nerves of the diseased joint were atrophied, and therefore this joint became involved. 7. That it is due to traumatism or some change in the condition of the joint to be affected. The progress attained depends on the fact that the nerves of all large joints are degenerated, and some degeneration occurs in the structures of apparently healthy joints in tabetics, as pointed out by Jurgens and Westphal.

I am inclined to the last theory. The fact that the nerves and structures of seemingly healthy joints are in a state of partial degeneration has been demonstrated, and it only remains to assign a reason why a certain joint should continue in the process. I think it is reasonable to look for this in some local condition, such as traumatism. If it were simply a continuation of the degenerative process, other joints would be involved in time. But a patient may have a single joint affected for years.

The idea that it is dependent on the peculiar gait is not tenable, for the disease occurs before inco-ordination is present, and patients have developed it while lying in bed; also because it occurs in the upper extremity.

Neurologists have not found for us the central point alleged by

Buzzard and Charcot, and changes in the peripheral nerves seem to explain the disease more satisfactorily. Charcot's disease differs in its pathology and symptoms from arthritis deformans and syphilitic joints sufficiently to give it an identity as a peculiar condition.

The idea that it is caused by the serous effusion, as suggested by Macnamara, it seems to me, does not need contradiction.

I do not think I can agree with Dr. Starr in considering it of a purely traumatic nature. The changes are none of them of an inflammatory nature, and must be regarded as due to nerve changes.

The treatment of the joint must necessarily be limited. The swelling tends to subside. This may be aided by pressure, massage, and external irritation. If the locomotion is very seriously interfered with by the instability of the joint, a splint should be applied, or in such a case, if the patient's general health is fair and there is no inco-ordination present, I believe excision of the joint is a justifiable proceeding. Spontaneous fractures unite well, and there is no reason why we should not get good union after operating.—*New York Med. Journal, July* 7, 1888, *p.* 1.

56.—ON THE MANAGEMENT OF DRAINAGE TUBES.

By A. Ernest Maylard, B.S., Extra-Surgeon to the Western Infirmary Dispensary, Glasgow.

Assuming that a suitable tube has been selected, properly introduced, and efficiently secured, we have to consider its subsequent management. While, so far, it has been possible to indicate with a certain degree of definiteness the various practical points to be attended to, there are no such precise rules to lay down with regard to its future management. One can only indicate in a general way certain considerations, to which attention should be directed, as possible guides to proper treatment; and in every case it is the individual judgment of the surgeon upon the condition of the part that really determines the right course to pursue.

If a tube is not draining properly, the chances are that it will be subserving the very opposite function to that for which it is intended; instead of acting as a drain, it may be serving the purpose of a plug, and as such it is only too likely to induce conditions the most prejudicial to rapid healing. When any discharge is confined it gives rise to tension, and tension causes inflammation and suppuration. Still further, the result of tension is to lead to burrowing, and the forcing asunder of parts which might otherwise have united by first intention. I have seen, in a case of amputation at the middle of the thigh, the stump become distended to such an extent through inefficient drainage, that on opening the flaps about three-quarters of a pint of sero-purulent fluid escaped. It is a little difficult to understand, under the modern septic views of inflammation and suppuration, why the tension of sero-sanguineous fluid

should give rise to the formation of pus; except it be that the fluid so dammed up forms a suitable nidus for the development of the pyogenic organisms. If proper attention be paid to the selection, introduction, and securing of the tube, it is never likely that this trouble of the tube becoming blocked at an early stage in the treatment of a wound will take place.

There are, however, many cases—and especially those of joint excisions for tubercular infections, with discharging sinuses and septic wounds generally—where, although acting efficiently at first, the tube subsequently becomes blocked from the thick viscid or flocculent secretions which invariably exude. In these cases nothing but complete removal of the tube, and its proper cleansing, is of any avail. And here I may be pardoned, I hope, for alluding to such a simple matter as the proper cleansing of a tube. It should be thoroughly squeezed, and rolled about between the thumb and fingers in an antiseptic fluid, and finally examined by looking through the tube from end to end. So often has a nurse returned a tube to me impervious from the existence of a small invisible coagulum in some part of its channel, that I make a point of examining the tube myself before reinserting it.

"No tube which one wishes to put back again should be removed until the third day, on account of the difficulty of returning it. By that time, however, it lies in a channel in the blood clot or lymph, and slips back easily." (Watson Cheyne's Antiseptic Surgery.) Should, perchance, the tube appear to be plugged within this period, a sharp injection from a syringe, or the insertion of a probe along the canal, will be sufficient to render it pervious.

A very important feature, as affecting the rapidity of healing, is the total withdrawal of the tube, and it is only experience and a careful consideration of the local conditions of the part, that can decide one when and how to do it. In most cases there is no doubt that the process should be carried out gradually—that is to say, the length of the tube should be shortened by degrees, and the calibre of the tube inserted similarly gradually diminished. In this way the parts are allowed to contract without any fear of discharges becoming pent up, and the skin wound, which is almost always the readiest to heal, maintained patent until the deeper parts have cicatrised. It is one of the greatest abuses a tube can be put to, to leave it too long in the tissues. By so doing, a sort of permanent sinus is established, which is sluggish to heal, and an ever ready channel for the incursion of septic material.

That tubes may prove as much conductors of matter from without as of discharges from within, should ever be borne in mind, and none but strictly aseptic dressings should be employed so long as there is a drainage tube in the wound. This naturally applies only to those cases which are aseptic from the first. I have very painfully impressed upon me a breast case which I saw some years

ago, and which I have ever since associated with this fact, of not properly protecting a wound containing a drainage tube. The mammary wound was perfectly aseptic, and being dressed with proper antiseptic precaution. It having become, however, quite a surface wound—with the exception of one place where there still existed a sinus with a tube inserted—it was thought that boracic dressings might with advantage be substituted for the carbolic acid ones. The day following the change in the dressings, the patient's temperature rose, the wound became septic, and in less than a fortnight the patient died of septicæmia. I have never ventured since to apply a weak antiseptic like boracic acid to a wound until all drainage tubes are out and no sinuses exist: that is, not until the wound is quite superficial.

There are a class of cases such as psoas or lumbar abscesses, empyemata, and in general any wounds in the thorax or abdomen, where extra precautions are needed in dressing. Every inspiratory or expiratory act tends to suck air in through the tube. Hence it becomes necessary to properly protect the orifices of the tube by applying over it, immediately it is exposed, a piece of gauze wet with an antiseptic solution.—*Glasgow Med. Journal, Oct.* 1888, *p.* 315.

57.—A NEW METHOD OF TREATING ABSCESSES.

By Wm. C. Wile, A.M., M.D., of Danbury, Conn., U.S.A., Ex-Vice-President of the American Medical Association.

The proper treatment of an abscess, of any size, character or location, has long claimed the attention of the surgeon, and the literature on the subject is almost as prolix as that of infant feeding. Various methods have from time to time been devised and given out to the profession, some of which have produced valuable and permanent results, but nearly if not quite all have the objection that, in order to carry procedure out, the knife must be used to a greater or less extent. This is not only a source of dread to the patient, but involves also considerable suffering, the solution of continuity of the tissues, tardy repair, accompanied with the attendant danger of sepsis from the exposure of the pus carried to the air.

In the last ten years I have had a great number of these phlegmons to treat, and I have tried all the known methods of procedure, with varying success; but at no time have I been entirely satisfied with the results obtained. For the last year I have been using the method described below, with the most satisfactory and unvarying results, in all classes of abscesses not multiple, and not situated in any of the great cavities of the body.

As soon as I am satisfied that pus has formed, I plunge into the cavity a large-size aspirating needle, and attach to it an Allen surgical pump, such as I show you, and by turning the crank, re-

move all that is possible of the contents of the sac. I then take a 20 volume solution of peroxide of hydrogen. To this I add an equal volume of water and, by reversing the motion of the handle of the pump, without withdrawing the needle, I inject the cavity till it is moderately distended only. Almost immediately I find that the distension becomes greater and greater until I am satisfied that the medicament has reached every nook and corner. Then I simply turn the pressure off from the rolls of the instrument at the back of the pump, the accumulated gas which has been given off rushes out through the tube, carrying with it a considerable quantity of *débris*. I tighten the rolls again, and, continuing the motion of the instrument in the same direction, I extract every particle that is left, and repeat the procedure as before. At the second washing with the peroxide I notice that I do not get nearly so much distension, and when the screw at the back is loosened for the second time but little of the gas and fluid comes away. After this comes off I am sure that I have a perfectly clean cavity. Now I take a solution of bichloride, 1 to 2,500, and again inject and withdraw two or three times. I am confident that I have a perfect aseptic cavity. At this stage the needle is removed, and I place over the whole integument overlying the abscess a smooth, even pad of iodoform gauze. I bind it firmly and neatly in place by an abundance of bichloride gauze bandage.

This dressing I invariably leave in place from four to ten days, when I always find complete closure of the cavity, perfect adhesion of its walls, and not a trace of the abscess left. The patients are simply delighted that no knife is used, and but very little pain

produced, no after-dressings required, no salves, solutions or ointments, no washings or daily dressings; a simple, almost painless procedure, with a rapid cure and no cicatrix. I do not believe there is to-day any other mode of procedure in this particular class of affections that will produce such satisfactory results for the same amount of outlay of skill and time.

In the many cases which I have operated upon I have never seen a single untoward effect, though I have treated nearly one hundred abscesses of one kind or another in this manner, nor do I believe that there is another instrument made which can do this work so easily and well as the little one before you. Its operation is perfect, its exhaustion complete, and by a single reversal of the direction of the crank it will either inject or exhaust without turning a stopcock, or making a single extra movement; in fact, I do not know of any single instrument that will do so many things so perfectly, and with such little effort on the part of the operator, and costing so little money, as the Allen Surgical Pump. [This pump may be obtained of Messrs. Hilliard and Sons, Glasgow.]—*Journal of American Med. Association, July* 21, 1888, *p.* 86.

58.—ON TENSION THE RESULT OF INFLAMMATION.

By Thomas Bryant, F.R.C.S., M.Ch., Hunterian Professor of Surgery and Pathology to the Royal College of Surgeons.

In considering the subject of tension in its relation to inflammation, I need hardly remind you that swelling is one of the classical symptoms of the process, and that this swelling is due to the exudation from the slowly flowing blood stream of corpuscular liquid which passes through the inflamed tissues, and which may lead up to blood stasis; this slowing of the blood current and consequential exudation forming Sanderson's central phenomenon of inflammation. Indeed, these elementary truths are such as every student and practitioner should ever have before him when considering any inflammatory affection, for they form the key to an intelligent appreciation of the local symptoms and pathological phenomena of every case. When effusion takes place, therefore, into any tissue which is inflamed, swelling follows, and the amount of swelling turns upon the character of the tissue into which it takes place. Where there is much connective tissue, and the parts are elastic and yield to distensile forces, the swelling is great; and as the resistance to it is not serious, there is little or no tension, such an effect only following extreme distension. Where the effusion is poured out into connective tissue contained in fibrous sheaths, or beneath or within fascial envelopes, as in joints, the distending force is great, and tension is found acting to a high degree; and where it exists in bone or in unyielding bony cavities, there is of necessity tension, which is of the severest type.

That local pain is a sign of tension all agree, although all will probably not consent to the opinion that tension is the cause of most pain. In inflammation, however, I think there can be little doubt as to the truth of this view, for pain and tension are practically proportionate, the former being felt in exact proportion to the degree of the latter, and rising and falling with its force. Indeed, in a clinical point of view, I believe that the pain of tension should be regarded as a test symptom of inflammation. Where there is feeble tension in any inflamed part, the pain hardly exceeds that of uneasiness; where there is high tension, the suffering is great; where tension is relieved by natural or surgical processes, pain goes. Under all circumstances, the presence of pain in any local inflammation may be accepted as a sign and indication of tension and a call for its relief. When pain is increased at night—that is, when the patient is warm in bed and the circulation is acting at its highest force—the probabilities are that the affection is inflammatory, and that such increase in the force of the circulation which is promoted by warmth tends towards the production of tension or its aggravation.

The *effects of tension* upon the inflamed tissues depend much upon its degree. When it is but slight, tension may tend only towards the maintenance of the inflammatory process; when it is more severe, it must help, not only to keep up, but also to aggravate, the action; and when it is acting at its highest force, there is no escape from the conclusion that it assists powerfully to bring about the destruction of the tissues which feel its immediate influence, and to encourage inflammatory action in such as are more remote. How it helps to bring about destruction of inflamed tissue is not difficult to understand, since it does so in tissues that are inflamed in the same way as it has been shown to do in those that are not so affected—that is, by helping to bring about blood stasis. And as in tissues that are inflamed the tendency to blood stasis invariably exists, so, with tension acting upon them, there can be no surprise that this blood stasis, with all its evils, is greatly encouraged. With this blood stasis the probabilities of starvation of tissue are consequently much enhanced, and, as a result, their death is rendered more probable. To say, as students are taught to say, that death of inflamed tissue from tension is due to the cutting off of blood supply to the inflamed part is a fundamental error. The blood is in the tissues, but it is stagnant and not circulating. The death of inflamed tissues from tension takes place, as it does in a strangulated part, from the stasis of its own venous blood. It is a form of static, not of anæmic, gangrene—of death of tissue brought about by the stagnation of the blood in the capillaries, and not by a want of blood supply.

I will now proceed to illustrate the effects of tension upon different tissues; and first of all let me take as an example a case

of cutaneous erysipelas, and assume that it has attacked the skin of a part loosely connected with the deep tissues and capable of ready distension. The local sensation produced by the disease does not go beyond a sensation of stiffness—it does not amount to pain; but let the inflammation spread to parts so placed as to be anatomically capable of but little, if any, distension, how different then are the symptoms complained of, and how soon inconvenience passes into pain, even of any acute kind. Let anyone who has had erysipelas, or any inflammation of the nose, upper lip, nape of neck, or ears, answer this question, and at the same time tell us the comfort he experienced when the tension was mechanically relieved. In this example of cutaneous inflammation the view that local pain is fairly due to tension is well supported, and the relief that is given to the symptoms by local treatment helps the conclusion.

Let me now draw an illustration of the effects of tension from inflammation of a deep structure bound down by inelastic tissues, such as is met with in a familiar example of thecal inflammation. What pain is at once experienced here from the first onset of the trouble, and how rapidly it intensifies! What destruction of tissue follows if relief be not given! And what comfort and rapid recovery ensue if the case be rightly treated! These facts are familiar to us all, and yet I am rash enough to say, even in your presence, that I am somewhat in doubt as to whether the generality of surgical practitioners realize their full meaning, and so conform their treatment to the exigencies of the case as to give their patients the best chance of a recovery. Let me take this example of thecal inflammation, therefore, as a text, and enlarge upon it, first of all following its natural course. Inflammation attacks the tissue; the capillaries of the inflamed part consequently become more or less thrombosed, and as a result effusion takes place. The effusion is confined in a tight channel, the walls of which are but feebly capable of yielding, and as a consequence the fluid, pressing centrifugally everywhere, not only violently stretches or distends the tissues in which it is confined and gives rise to high tension, but also seeks a vent by flowing in the line of the least resistance along the course of the tendon up the forearm. From this pressure, if relief be not given, death of tissue speedily follows, this result being brought about, as already described, by the influence of tension in encouraging the blood stasis which forms part of the process of inflammation. With the death of tissue suppuration within the thecal channel takes place, rupture of the weakened thecal structure follows, and in the end comes the external discharge of the dead tissues, with probably many burrowing abscesses. A vast amount of destruction of tissue from tension has taken place quite unnecessarily, since by active and scientific early treatment a very different result could have been obtained. The cause of all this extensive trouble was practi-

cally due to tension, and if this had been relieved in its early origin, recovery would have been possible, nay probable, without loss of structure.

The inference to be drawn from such a case as this, and from all others like it, is that to relieve tension by giving vent to pent-up fluids in distended tissues is a primary surgical duty, and that this practice cannot be applied too early, may safely be dogmatically advised. At the present day amongst experienced surgeons it may be said that this practice is fairly universal; but is it? Is there not even now a lingering dread in some surgeons' minds of incising or even deeply puncturing an inflamed tissue before suppuration has commenced? and have not many of us heard, when an incision has been made into such inflamed tissues as those just mentioned, something like an observation of pleasure that a fluid like pus has been seen to flow, as if to justify the act? Whereas the surgeon's pleasure should be where his duty lies, to give vent to pent-up inflammatory fluids before suppuration or other destructive changes have taken place. In my own practice, I as a matter of routine cut down freely and immediately upon a finger the seat of thecal inflammation, and always congratulate myself that I have done so when only serum and blood escape, and no pus; for the existence of pus means destruction of tissue under all circumstances, a result which should be avoided.

Again, glaucoma attacks the eyeball of a patient, and, whether acute or chronic, is attended by distension of the globe of the eye and extreme pain, the result of tension. Its treatment consists in an operation for the relief of tension, and without an operation in one of its forms recovery is considered by all authorities to be hopeless. "We must always bear in mind," writes my colleague, Mr. Higgens," that an operation to be successful must be performed early," the author meaning by "early" that it should be undertaken before the secondary changes in the structure of the eye, the result of distension, have been brought about. Surely this principle of practice, which is so binding and valuable in the treatment of an affection of the eye due entirely to tension, should be equally binding, as it would be equally valuable, in the treatment of all local inflammations in which tension has such a pervading influence.

Acute inflammation of the pulp of a tooth affords another illustration of the evil effects of pent-up inflammatory fluids upon surrounding parts, and of the severity of the local symptoms which must be attributed to such a cause. "In this case," writes Moon, "every factor for the production of agonising pain is present; the distensible pulp, largely supplied with nerves, undergoes vascular engorgement within an unyielding case—closed in at all parts except at the aperture of exposure." The trouble, if left unrelieved, soon ends in the death of the pulp, and too often in the extension of the inflammation to the periosteum of the jaw bone and sur-

rounding parts, with its ultimate bad effects. How many of these consequences may be avoided by judicious treatment I must not now stop to inquire; clearly the majority. Where the antrum of Highmore is involved in acute inflammatory trouble the same conditions are present. Tension, and as a result, pain, are prominent symptoms, and these are only to be relieved by surgical action.—*Lancet, June* 23, 1888, *p.* 1234.

59.—ON THE TREATMENT BY EXCISION OF MASSES OF SCROFULOUS GLANDS.

By W. Knight Treves, F.R.C.S., Surgeon to the Royal National Hospital for Scrofula, Margate.

[Mr. Treves's paper contains the narrative of nine cases in which he has removed caseous glands with success. He says:]

Scrofulous glands do not, as a rule, attain a large size; generally they suppurate within reasonable limits as to dimensions, and discharge externally, either naturally or as the result of surgical interference. Occasionally, however, the glands continue to grow, become the seat of deposit, infect one another, and gradually increase in size till they form large masses of glands, weighing perhaps more than a pound in weight. When enlarged to this extent the mass interferes with the circulation, and sometimes, by pressure on the windpipe, with respiration also. Such cases terminate fatally if left to nature, and cannot, so far as I know, be dealt with satisfactorily or with benefit to the patient by any other mode than that of excision. For many years I left such cases alone, trying for months, and even years, every drug treatment that has ever been recommended, without in any instance witnessing a favourable result. In fact, any one who has seen a number of these glands after they have been excised and cut open will readily appreciate the futility of drugs in such cases. A large proportion of, or perhaps all, the glands in a given case are found to contain masses of cheesy caseated material, which masses are extra-vascular, are thrown out from the tissues, and are no more likely to be affected by drugs than a loose sequestrum. I think it is time that the rank absurdity of treating scrofulous gland swellings with drugs to promote absorption should be exploded. Of course I am not referring to recent gland swellings, which may not contain scrofulous deposit, and which may be resolved. Subsequently I tried the process of incising such portions as were softening, and scooping out the contents. I found this plan no better than the expectant one; it entailed a number of openings and a number of suppurating cavities, which could not from their surroundings and condition readily contract and heal. Also, after the operation of scooping, other glands, which, although enlarged, had not previously softened, gradually broke

down, the cellular tissue became inflamed and brawny, hectic continued, and the patient died worn out by the chronic blood-poisoning, or from complications in the lungs or elsewhere. I have found scooping with good drainage answer very well for enlargements of reasonable size, but not for such cases as are reported below. I have combined limited scooping with excision in some of the cases; for instance, after excising a mass, a broken-down gland may be found deeply and immovably fixed, and may be more advantageously scooped out. These large masses almost invariably extend into the deeper parts of the neck; they lie under the sterno-mastoid and on the deep vessels. Their removal is not exactly difficult, but requires care, time, and patience.

As regards the operation, the following hints may be of use. The entire removal should be effected by dissection alone; no directors, handles of scalpels, or fingers should be used to separate the glands from the surrounding cellular tissue. Cut down on the surface of the mass, dissecting the cellular tissue as closely off the capsule as a nerve is cleaned in the dissecting-room. Cut always on the capsule, and never allow the knife to stray from its surface. When sufficient of the anterior surface is exposed, pass a thick thread through the gland, draw it gently forward, and, continuing the dissection, get gradually to the back of the gland, removing thus portions of the mass at a time, each portion comprising perhaps one gland, perhaps several closely connected with each other. In this way the mass is gradually removed. If the plan of cutting on the capsule is strictly adhered to, it is not easy to divide any vessel of importance without doing so intentionally; whilst, if it is not followed, the jugular vein will probably be incised, as the deep glands lie along and are more or less adherent to its sheath. I have several times had to divide the external jugular vein and twice the sterno-mastoid muscle, but as a rule the glands can be pushed or pulled from underneath this muscle. In none of the cases has there been any serious hemorrhage, and all the cases operated on have recovered. In one of the cases I accidentally opened the internal jugular vein; it was tied above, below, and at the point of incision, and no evil results followed.

As regards treatment of the wound, anything like retention of blood, serous oozing, or discharge is attended with such serious consequences that latterly I have not ventured to suture the skin flaps, except, perhaps, a single stitch to keep them in proper line. If the flaps are sewn together, hollows must be left underneath in the space the gland tumour has come from. I have also found irritation set up by drainage tubes. I have preferred, therefore, to let the flaps adapt themselves to the tissues underneath, supporting them by pads of antiseptic cotton. Strict antiseptic precautions are used in the dressings. The patient, when put to bed, has his head and neck fixed by sand-bags; he is not allowed to

move or talk, and is fed entirely on liquid nourishment so as to avoid the movements of mastication. I have found, as might have been expected, that the tissues of the neck have great healing power, but are equally prone to inflammation from the irritation of tubes or from the slightest obstruction to the free exit of discharge. In fact, it is a part which is powerful alike for good or for evil. A drainage-tube may safely and with advantage be passed into the hollow capsule of a gland after scooping, but it does not rest easily if laid among the deep cellular tissue of the neck.

It would be better if glandular swellings were treated like any other tumour or morbid growth, and that if not amenable to treatment within a reasonable time they should be excised or scooped. The capsules of many of these glands are dense and tough; they lie deeply in the vessels, and to incise them for the purpose of scooping without previously exposing their surface by dissection is more dangerous than to remove them. These deep glands seldom approach the surface by suppuration. The best that can be hoped for, if they are left alone, is that their contents may undergo calcareous degeneration; meantime they keep the patient in bad health, and may extend and cause other and more serious complications. I think all diseased glands should be got rid of either by scooping or the knife, and that the latter has been too much neglected. I may add that I have excised glandular swellings for many years in the Margate Infirmary without in any instance meeting with a fatal result.—*Lancet, July* 21, 1888, *p.* 105.

60.—ON THE USE OF "SALUFER" (SILICO-FLUORIDE OF SODA) AS AN ANTISEPTIC.

By A. W. Mayo Robson, F.R.C.S., Surg. to the Leeds Infirmary.

A perfect antiseptic for surgical purposes has yet to be found. It must be at the same time a strong germicide, non-poisonous, unirritating to the skin or to the tissues, inodorous, non-volatile, not destroyed by oxidation, non-corrosive to steel instruments, non-injurious to sponges, and inexpensive. In "salufer" (silico-fluoride of sodium) we have a substance which would seem to fulfil most of these conditions. Mr. W. Thomson, F.R.S.Edin., read a paper before the British Association at Manchester last year in which he explained the results of certain experiments he had made with respect to the antiseptic properties of some of the fluorine compounds. He had tried the effects, on flour paste and on meat chopped into small pieces and mixed with water, of a very large number of chemical compounds, and had found that those which had the most remarkable antiseptic properties were the compounds of fluorine, the neutral fluorides of sodium, potassium, and ammonium, and their fluosilicates. Fluosilicate of soda he found to be the best adapted for use as an antiseptic, it being

non-poisonous, inodorous, and sparingly soluble in water. As it had only a very slightly saline taste, he said it might be employed in preserving food without communicating any taste to it. Mr. Thomson stated that a saturated solution which contained only 0·61 per cent. possessed greater antiseptic power for animal tissue than 1 in 500 perchloride of mercury solution.

For general surgical purposes I have been very well satisfied with perchloride of mercury, which is a most efficient antiseptic, and which is so very conveniently carried in the form of powders, each containing five grains of perchloride and five grains of sal-ammoniac, which quantity, dissolved in a pint of water, makes a 1 in 2,000 solution; but it has the great disadvantages of roughening and cracking the hands, of corroding steel instruments, and of being poisonous. Hence it is dangerous for syringing out large cavities—for example, psoas abscess; for washing out serous sacs—for example, peritoneum and pleura; or for irrigating the interior of the uterus after gynæcological operations or in obstetric practice.

It is chiefly to find a safe and efficient antiseptic for such cases that I have during the past few months been using "salufer" almost exclusively in my surgical work. Before describing details of critical cases which incontestably try the value of any antiseptic, it might be well to mention a few of the uses to which I have put "salufer"; and, unless otherwise stated, a solution of 20 grains to the pint of water is always understood, which proportion seems to be at the same time unirritating and efficiently antiseptic. They are as follows: in washing out the peritoneal cavity after laparotomy, here using 10 grains to the pint; in cases of strangulated hernia; in the radical cure for hernia; in excision of joints; in amputation of the arm, leg, and thigh; in washing out the pleural cavity; in the removal of tumours; in excision of veins; in ligature of blood vessels; in compound fractures; in osteotomies; in washing out the bladder; in washing out the uterus after curetting the interior, and after the removal of septic retained membranes; as a vaginal douche before and after Apostoli's operation for fibroid; in the irrigation of extensive ulceration in the rectum, where a poisonous antiseptic could not have been employed; in washing out the stomach; as an injection in gonorrhœa (10 grains to the pint); as an injection in otorrhœa; in syringing out large pelvic abscesses; as a gargle in hospital and in diphtheritic sore throat; as a nasal douche after removing polypi; for syringing out empyema of antrum; and in many other cases. My colleague, Mr. Bendelack Hewetson, tells me that he has used it extensively in ophthalmic and aural surgery, and that he is well pleased with it as an antiseptic. As I have no opportunity of testing "salufer" in obstetric practice, I have asked some of my medical friends to try it, and their reports have been uniformly satisfactory. My brother, Mr. Herbert Robson, tells me that he

has found it most efficient, both in syringing out the uterus and as a vaginal douche.

The following cases, for the notes of which I am indebted to my house-surgeon, Mr. Moynihan, are given more in detail.

1. *Goître* threatening asphyxia. Division of isthmus by galvano-cautery. Skin incision four inches long. Drainage tube introduced, and wound stitched up with catgut sutures. Tube removed on third day. Antiseptic dressings on third, fifth, and eighth days, the wound being then completely healed. The highest temperature was on the day following operation, being then 99·7°.

2. *Strangulated Inguinal Hernia.* After the return of the gut (a portion of the Omega loops of Treves) the neck of the sac was ligatured with No. 3 catgut. The wound was syringed out, and a drainage-tube introduced. Dressing on first, third, sixth, and seventh days, the tube being removed on third day. All but the drainage opening healed by first intention. Highest temperature 99·6°, at every other time below 99°.

3. *Double Osteotomy* for extreme bowing of the tibiæ. The right tibia was divided on December 8th, and three-quarters of an inch of the shaft of the bone removed. No drainage-tube introduced. The wound was uncovered for the first time on December 22nd, and found to be perfectly healed. Highest temperature 100·4°, the evening of the day after operation. Temperature never afterwards reached 100°. Left tibia divided on December 29th, and an inch and a quarter of bone removed. On January 11th, when the wound was uncovered, it was found to be perfectly healed. Highest temperature 99·5°. In both cases a catgut stitch was introduced.

4. *Varicocele* of enormous size, said to reach in summer to the knee. At the operation the veins were ligatured in four places, and the intermediate bundles of veins removed. No drainage-tube. On the seventh day the dressing was taken off, and, but for thickening and induration round the veins, the site of the wound could not have been found. Temperature never above normal.

5. *Removal of Enlarged Glands of Neck.*—Incision two inches long: four enlarged glands, two of them caseous, were removed. Small drainage-tube introduced. Dressings on 3rd, 6th, and 9th days; wound healed by first intention. Highest temperature 99·2°.

6. *Radical Cure of Varicose Veins of Leg and Thigh.*—Two veins of the leg and the internal saphenous trunk were doubly ligatured, the ligatures being about half an inch apart, the intermediate portion of vein not being divided. The wounds, which were not drained, were not dressed till the eighth day, running an aseptic course, the highest temperature being 98·8°.

7. *Compound Fracture of Tibia and Fibula.*—About half an inch of projecting tibia was removed, and the tendo Achillis was divided before the leg could be got into good position. The wound

was enlarged for about an inch and a half, and syringed out with five pints of "salufer" lotion. The highest temperature was 100·2° the night after operation, never afterwards reaching 100°; perfectly aseptic course.

8. *Radical Cure of Varicose Veins of Leg and Thigh.*—Ligatures applied in four places. Dressed on ninth day; course aseptic. Highest temperature 99·7°.

9. *Tubercular Salpingitis; Acute Peritonitis.*—An incision about three inches long was made through linea alba. Acute peritonitis with effusion was found, and as its cause a ruptured Fallopian tube, covered with miliary tubercles. After removing the diseased appendage, the peritoneum was washed out with "salufer" (grs. x ad Oj), and a Bantock's tube introduced. The case ran a perfectly aseptic course.

10. *Removal of Scirrhus of Breast*, of very large size, together with enlarged axillary glands. The whole breast and about six enlarged axillary glands were removed. The wound was of such large size that it was found impossible to bring the edges into apposition along the central part, where a gap of about three inches by two inches was left. Wound dressed on third and ninth day. The whole of wound, with exception of central part, was perfectly healed. Highest temperature 98·6°; course perfectly aseptic.

11. *Macewen's Operation for Extreme Genu Valgum.*—The angle formed by the tibia, with a line continued down in vertical direction from the thigh, was 75°. Highest temperature 100·2°. Dressing never changed until twelfth day, when the wound was healed.

12. *Pyosalpinx.*—The abdomen was opened by an incision about an inch and a half in length. The distended and totally adherent Fallopian tube was accidentally burst, a large quantity of the most fœtid pus escaping. The abscess cavity and the lower part of general peritoneal cavity (the upper being separated off by sponges) were well syringed out with about ten pints of "salufer" lotion (twenty grains to the pint). Keith's drainage-tube introduced. At subsequent dressings the discharge was found to be perfectly sweet. The temperature, which before operation had never been below 101·2°, fell after operation to normal, and has remained so since.

13. *Lipoma of Shoulder.*—Tumour, size of large orange, removed January 25th. Dressed on third day, when the drainage-tube was removed, and on the tenth, when the wound was quite healed. No pus was seen, and temperature normal throughout.

Conclusions.—The following are the conclusions to which I have come, after an extensive and varied trial of the fluosilicate: (1) That "salufer" is an efficient antiseptic. (2) That the powder is a strong irritant, even acting as a caustic if dusted on a raw surface, and is, therefore, in that form, unavailable for surgical purposes. (3) That a solution of one grain to an ounce of water is quite

strong enough for ordinary purposes, in that strength being apparently unirritating. (4) That a solution of ten to twenty grains to a pint may be safely used to syringe out closed cavities, even where one cannot be certain of all the fluid returning. (5) That the solution is unirritating to the hands, which is no small advantage to those operators whose fingers are easily irritated by the ordinary antiseptic solutions. (6) That the solution acts on the glaze of porcelain after long use, and corrodes steel instruments, but that sponges are unaffected by it. Mr. Thomson kindly suggested to me the addition of bicarbonate of soda to the solution of "salufer" to prevent it corroding steel instruments; this certainly diminishes its action on steel. (7) That a very convenient and comfortable antiseptic poultice may be made by soaking Gamgee tissue or absorbent wool in a hot solution (ten grains to the pint), wringing it free of excessive moisture, applying it to a wound, and covering with gutta-percha tissue. (8) That although for ordinary surgical work I may still employ perchloride of mercury, in all cases where there is danger of absorption, as in syringing out cavities, I shall employ "salufer." (9) That I believe "salufer" will prove to be of great use to obstetricians, it being both safe and efficient. (10) That it acts very efficiently as a deodoriser to the hands. After examining carcinoma of the uterus or rectum, by washing and steeping the hands in a saturated solution, the odour is removed more efficiently than it is by any solution with which I am acquainted. Messrs. Reynolds and Branson have made some compressed tabloids, each containing forty grains, that is, sufficient to make a quart of solution. They have also been good enough to carry out my wishes in making a dressing of "salufer" wool.

In all the cases related this "salufer" wool has been the dressing employed, a layer of gauze wet with the "salufer" lotion covering the wound, and intervening between it and the wool.—*British Medical Journal, May* 19, 1888, *p.* 1054.

BRAIN AND NERVOUS SYSTEM.

61.—AN ADDRESS ON THE SURGERY OF THE BRAIN AND SPINAL CORD.

By Wm. Macewen, M.D., Surgeon to the Glasgow Royal Infirmary.

[Notwithstanding the unusual length of Dr. Macewen's Address, at the Glasgow Meeting of the British Medical Association, we reproduce it here almost *in extenso*, for it will doubtless be generally regarded as the most important contribution which has hitherto been made to the Surgery of the Brain and Spinal Cord.]

However wishful one might be to extend the sphere of surgery to the brain, it was necessary, first, to adopt means whereby immunity from the inflammation which so constantly attended

brain lesions could be secured, and secondly, to endeavour to gain a better physiological knowledge, in the hope that light might be shed upon the localisation of cerebral lesions.

In the wards of the Glasgow Royal Infirmary, Lister had formulated the theory, and wrought out the practice of the antiseptic treatment of wounds, and already much had been done to dissipate the fears of surgeons regarding operations practised on other parts of the body. Experience gained by me showed, that not only compound fractures of the skull, but large osseous defects in the cranial vault, accompanied by extensive loss of cerebral substance, were quite amenable to treatment, exhibiting no tendency to inflammatory action, as long as the tissues were preserved aseptic. When this held true of the rough and often septic lesions produced by machinery accidents, how much surer would well planned and carefully executed operations be? This conclusion was subsequently amply confirmed by the results of operations undertaken by me for the relief of injury, in which the brain had to be exposed, and from which detached portions of it had to be removed. In such instances no inflammatory phenomena interrupted the even course of healing. A striking feature of these wounds of, and operations upon, the brain, was the absence of false hernia cerebri, which had hitherto formed such a conspicuous complication of brain lesions in man, and which had so often marred the success of physiological experiments, by extending the zone of irritation, and by the fatal results which ensued. It was thus manifest that inflammation arising from exposure of, and operations upon, the cerebrum, could be obviated under aseptic conditions.

Meanwhile many workers had been sedulously endeavouring to unravel the intricate and complex questions relating to the structure and functions of the brain. Previously the cerebrum was supposed to perform its function as a whole, in the same way as the liver, heart, and kidneys performed theirs, there being no differentiation of function. Broca, in 1861, from observation on human pathology, isolated a particular limited area, as the seat of the faculty of articulate language. This very important investigation foreshadowed the localisation of function in other cortical centres, for if the existence of a definite function confined to an isolated area were admitted, then the question arose, how many other centres with specialised functions might there be? Broca's discovery was thoroughly iconoclastic, it shook the notion entertained regarding the unity of brain function to its foundation, it awakened thought, and made men explore anew with critical eyes, fields which previous investigators were supposed to have exhausted. Dr. Alexander Robertson, of Glasgow, suggested, in 1866, that there were separate sets of fibres for the conveyance of special motor impulses from the cortex. Hughlings Jackson, in 1869, stated that there were many limited areas on the brain connected

with separate and distinctive functions, founding his opinion not on speculative deductions, but on clinical experience, and on the direct observation of pathological facts. The inception of the idea that there was a portion of the brain whose function was related to motion, was treated with extreme scepticism, and the suggestion was likely to have long remained a speculative question, had it not been for the advent of another and more direct mode of examination. This new departure consisted in the performance of experiments upon the lower animals, by Fritsch and Hitzig, who in 1870 published an account of their observations. They demonstrated the existence of a series of circumscribed areas on the surface of certain of the cerebral convolutions, the electrical stimulation of which caused, on the opposite side of the body, co-ordinated movement, in distinct groups of muscles. These were momentous facts, destined to revolutionise former ideas of cerebral function. But their full force and significance were not recognised, in this country at least, until Ferrier's observations on the brains of animals, undertaken to put to an experimental proof the views entertained by Hughlings Jackson, were published in 1873. Then the mind of the physiological world was fairly awakened. The suggestions of Hughlings Jackson on the motor cortex became crystallised. Another link in the unity of plan of creation was manifest, as even in the higher and more complex brain of man, parts existed whose function found homologous expression in that of the lower animals.

Abundant proof has been gathered from human pathology, such as that afforded by the elaborate observations of Charcot and Pitres, to put beyond cavil the broad fact that there are points in the human cortex cerebri intimately related to the motor and sensory functions of certain parts of the body. The apportionment of definite areas and their precise delimitation is still the subject of investigation.

Many interpretations have been put on these facts; some hold that the central convolutions are distinctly motor in function; some that they are sensory; others that they are both motor and sensory; and still others believe that the excitable regions of the cortex are but points of departure and not foci of production of motor reactions. These views, interesting in themselves, cannot be discussed here; it is enough for our present purpose to recognize that there are certain regions of the brain in intimate relation with the movement and the sensation of certain parts of the body, and which, in the presence of either irritative or destructive lesions, give rise to phenomena which are of the greatest diagnostic value.

The Initial History of Cerebral Surgery.—This extended physiological knowledge enabled cerebral lesions to be more accurately localised, while my experience showed that, by preserving aseptic the parts operated on, surgical interference with the brain could be robbed of its chief danger.

1. *Case in which the Symptoms of Focal Cerebral Disease led to Diagnosis of Lesion in Broca's Lobe:* 1876.—While in possession of this knowledge a case of cerebral abscess presented itself to me in July, 1876. The general symptoms of this affection were clearly manifest. A cicatrix on the forehead marked the site of an injury under which the skull was bare. Had this cicatrix been taken as a guide to the localisation of the abscess, and an operation performed there, no abscess would have been found. But other phenomena were exhibited which enabled its seat to be definitely recognised. A convulsion, accompanied by loss of consciousness, commenced on the right side, and gradually involved the whole body. On its cessation absolute hemiplegia of the right side was present, and remained for two hours, during which the patient was aphasic. Both these phenomena became much less marked at the end of this period. From these symptoms the abscess was diagnosed to be situated in the immediate vicinity of Broca's lobe. It was evident that the whole of the base of the left third frontal was not involved in a destructive lesion, otherwise the aphasia would have persisted for a much longer period, and it was probable that Broca's area had become involved in the inflammatory zone surrounding the abscess. Trusting to these localising symptoms, it was proposed to open the abscess aseptically by exposing Broca's lobe. Unfortunately, the result of a consultation was decidedly to negative this proposal. The parents then refused consent, notwithstanding the assumption by myself of the sole responsibility of advising and performing the operation. Thirty-six hours afterwards, the convulsions returned and persisted until a fatal issue ensued. After death the friends acquiesced in the proposal to have the operation performed just as it would have been had permission to do so been granted during life. The skull was trephined, the brain exposed, and an instrument was introduced through the third frontal convolution for half an inch, when pus flowed through the incision, proving the accuracy of the diagnosis and giving poignancy to the regret that the operation had not been permitted during life. The abscess, about the size of a pigeon's egg, was situated in the white matter of the basis of the second and third frontal convolutions.

The blade of the bistoury, which had been left *in situ* after insertion through the trephine opening, was found to have penetrated its outer wall. The congested zone in the periphery of the abscess extended from the anterior horn of the lateral ventricle to the cortex of the base of the second, but especially that of the third left frontal convolution.

Here the precise spot in the brain which the abscess occupied was accurately determined from the localising phenomena induced by the focal lesion, which were trusted as indicating its position, though pointing to a different part of the brain from that

which would have been selected had the seat of injury been accepted as a guide. The operation showed how easily the pus could have been evacuated, though the unfortunate refusal to allow it to take place during life leaves uncertain the ultimate issue, but judging from my subsequent experience, worse cases have recovered after operation.

2. *Case in which Motor Phenomena were the sole Guides to the Cerebral Lesion;* 1879.—In 1879, a case with definitely localising motor symptoms was seen by me, occurring in a boy who had had a fall six days previously, which occasioned some slight bruising about the face and head, accompanied by a shade of mental obscuration. At the termination of forty-eight hours he was so well that his parents could with difficulty be dissuaded from allowing him to rise from bed. On the sixth day he had a series of convulsions, the twitchings beginning in the left side of the face, gradually involving the left arm and subsequently the left leg, during which consciousness was preserved. Paresis of these parts remained, though sensation was unimpaired. On the following day there was a renewal of the convulsions, the parts being affected in the same order, but the convulsions persisted and finally became general, with loss of consciousness. Those motor phenomena indicated a lesion on the right side of the brain, pronounced at the middle and lower portion of the ascending convolutions, as the face and arm centres were the first to show evidence of stimulation. The lesion was evidently of an irritative nature, such as might be occasioned by a spiculum of bone driven into the brain or by a degree of pressure exercised on its surface. It was clearly not destructive, such as might be occasioned by severe cerebral contusion. Dr. Alex. Robertson was asked to see the case, and agreed with me that the motor symptoms presented a sufficiently clear guide to the localisation of the lesion in the lower part of the fissure of Rolando. It was therefore resolved to expose that portion of the brain. As a preliminary, the head was shaven when a scarcely perceptible irregularity was detected in the cranial vault near the coronal suture. When the skull was exposed a fissure was discovered running across the coronal suture. Trephining was performed at a point slightly behind the auriculo-bregmatic line, and midway between the external auditory meatus and the vertex. This point *happened* to correspond to the posterior extremity of the fissured fracture. There was no blood between the dura mater and the skull, but the dura had a very dark colour. This membrane was opened and gave vent to two ounces of fluid and coagulated blood contained in the subdural cavity. The operation was conducted aseptically and the patient made an uninterrupted, typical, afebrile recovery. There was no recurrence of the fits; paralysis of the left arm soon disappeared, and he is living now in perfect health.

3. *Case in which the Symptoms Exhibited pointed to Lesion in Frontal Lobe:* 1879.—In 1879, an idiopathic case came under my observation, in which the totality of the symptoms indicated a lesion in the left frontal lobe. It occurred in a patient the subject of a small tumour above the left eyeball, in the orbital cavity. A tumour had previously been removed by me from that position, and had now recurred. Other symptoms had, however, meanwhile presented themselves. The left pupil was in a state of stabile myosis; there was obscuration of intelligence, slowness of comprehension, want of mental vigour, and pain in the head. These pointed to the probability of a lesion in the left frontal lobe, but were not sufficient to permit a diagnosis to be made. The patient was, therefore, placed under the observation of an educated skilled nurse. Some weeks later a series of convulsions occurred, the initial stages of which were carefully recorded by the nurse, without which the key to the brain lesion as indicated by the convulsions would have been lost, as, when seen by me, they had become general, and threatened speedy dissolution. The convulsions were at the outset strictly limited to the right side, commencing in the face and arm, and confined to these two parts during the initial attacks. The leg on the same side was affected during the third seizure, and ultimately the convulsions became general, with complete loss of consciousness. These phenomena were construed as indicating extension of the irritation to the lower and middle portions of the ascending convolutions; and, when this was considered along with the former evidence, it was concluded that an irritative lesion existed in the left frontal lobe. On these grounds it was resolved to trephine midway between the centre of the ascending convolutions and the anterior aspect of the cranium. At this point a minute nodule, the size of a barley grain, was detected on the outside of the skull. A large trephine was applied, a disc of bone removed, and a tumour of the dura mater which was exercising pressure on the brain was exposed. It was half-an-inch in thickness at this point, gradually becoming much thinner, and spreading all over the anterior two-thirds of the frontal lobe. The tumour was, after a prolonged operation, carefully dissected out along with the brain membranes, where they were involved in the neoplasm. The patient rapidly recovered, was restored to perfect health, and subsequently was able to gain her own livelihood. She lived for eight years afterwards, ultimately becoming affected with chronic Bright's disease, from which she died. The skull and brain were examined, and there was no trace of further tumour growth. This case was published in 1879. A paper by me, illustrating some points in the localisation of cerebral affections and the advantages of antiseptic trephining, published in 1881, concludes:—"When the skull can be opened, the cerebral coverings incised, and the brain exposed without fear

of inflammatory mischief, trephining ought to be employed when the localisation of the lesion is established. And further, besides operating in traumatic cases, trephining is justifiable in idiopathic cases."

4. *Cerebral Abscess in Temporo-sphenoidal Lobe: Involvement of Motor Area:* 1881.—In 1881, a very large cerebral abscess located in the temporo-sphenoidal lobe, but involving the basis of the third frontal and ascending convolutions, came under notice, but at such a late period of the disease, that before arrangements could be made for the operation, the patient suddenly exhibited all the phenomena of the abscess having burst into the lateral ventricles. Prior to this, aphasia could be discerned through the clouded state of patient's intelligence; there was paralysis of the left third nerve, and of the brachial and facial muscles on the right side. From these the extent and localisation of the disease was determined. Notwithstanding the fact that the patient was *in extremis*, the operation was performed. The membranes were congested, and the abscess was reached on penetrating a quarter of an inch of the cerebral surface. After several ounces of pus had been evacuated, something like a tennis ball was seen floating in a sea of pus, which still remained in the interior of the brain. This proved to be an old encysted abscess, in the periphery of which an acute abscess had developed, which had destroyed the whole of the temporo-sphenoidal lobe. The patient, though greatly relieved, died from exhaustion. It was seen post mortem that the whole temporo-sphenoidal lobe had disappeared, and the basis of the second and third frontal, as well as the basis of the two ascending convolutions, were the seat of acute encephalitis.

5. *Intracranial Effusion of Blood Diagnosed from Motor Symptoms alone:* 1883.—There are three cases which occurred in 1883, to which brief reference may be made, two of them having already been published. In May of that year, a traumatic intracranial effusion of blood was correctly diagnosed from the motor symptoms exhibited, as being located over the base of the ascending convolutions. There were no external marks of injury, and the motor symptoms alone were the guides to the position of the lesion. The patient is now alive, in robust health, and regularly at work.

6. *Syphilitic Tumour in Paracentral Lobule Diagnosed from Motor Symptoms alone:* 1883.—In the following month, a case of brachio-crural monoplegia, without loss of sensation, was relieved by the removal of a syphilitic tumour from the paracentral lobule and a plastic effusion from the centre of the ascending convolutions. Within a week the patient had recovered the power of the lower limb, and within a month was able to walk and perform her household duties. She has continued since in fair health, and can walk long distances, though with a slight hemiplegic gait, a certain amount of structural contraction having occurred prior to the operation.

7. *Focal Lesion in Ascending Convolution Recognised by Motor Symptoms alone:* 1883.—A few months later, a brachial monoplegia was correctly diagnosed, a focal lesion being found in the white substance of the motor cortex of the middle portion of the ascending convolution. The lesion was an extravasation of blood into the brain, around which encephalitis had occurred, inducing irritation and compression of this area. The relief given was immediate and complete. The patient has since been in perfect health and regularly at work.

With the relation of these seven cases, all of which occurred prior to the end of 1883, the initial history of the movement ceases to be solely personal as regards myself. In December, 1884, Dr. Bennet and Mr. Godlee, assisted by Dr. Ferrier, had the first case operated on in London in which a tumour was removed by Mr. Godlee from the brain.

A Few Points Regarding the Present Aspect of Cerebral Surgery.—Reference may now be made to a few points regarding the present aspects of cerebral surgery. First, are the localising motor phenomena reliable guides to the diagnosis of cerebral lesions situated in the motor cortex? My answer is unhesitatingly affirmative. Each case, however, requires to be studied on its own merits, the whole phenomena presented, the *unobtrusive* as well as the prominent features must be carefully searched for, the degree in which each is present must be accurately measured, and the whole weighed and compared with former experience before drawing a conclusion. The various points upon which reliance is to be placed should be tested wherever possible by instruments of precision, instead of the rough impressions conveyed by the hand being trusted. In testing the power of the muscles in brachial paresis, the dynamometer will impart much more accurate information than that which can be gained through the sense of touch, and occasionally shades of difference may be determined by it, which otherwise would remain undetected. In many cases the evidences of focal lesions are so distinct that a diagnosis is easy; in others they are so intricate that a prolonged and minute investigation is necessary to decipher them; while there are still others in which the signs are so perplexing that at best an approximation only can be arrived at. To lay bare a certain known convolution on a cerebral surface and observe the results of its stimulation, is an easier task than to take what appears to be a tangled skein of nerve phenomena, such as is presented by many lesions of the complex brain of man, and to relegate each to its true source and infer from a study of the whole what particular parts of the brain are affected.

8. *Epilepsy (Jacksonian) induced by Focal Facio-Lingual Lesion: Removal of Cyst from Brain: Cured.*—In support of the foregoing the following instances are adduced, and a case is first

presented in which the symptoms were so definite and precise that the diagnosis was easy, and permitted me to perform the operation on first seeing the patient. He was 22 years of age, and suffered from epileptiform convulsions, each lasting from two to three minutes, and as these occurred on an average every five minutes, he consequently had over 100 in twenty-four hours. The convulsions were limited to the tongue, the right facial muscles, and the platysma on the same side. When they subsided the parts remained paralysed. Consciousness was retained throughout. Eight years previously he had received an injury to the head, after which his right arm became weak, the weakness persisting, though he was quite able to work. It was clear that an irritating focal lesion existed, confined to the base of the ascending convolutions, causing a Jacksonian epilepsy. The only question was, whether the base of the ascending parietal was involved as well as that of the ascending frontal. The contraction of the platysma on the opposite side has been asserted to be induced by stimulation of the base of the ascending parietal. Dr. Whitelocke reminded me, however, that the platysma is often supplied by a branch of the facial, so that a single lesion in the base of the ascending frontal would be sufficient to account for the whole phenomena. The operation was at once undertaken, when in the lower part of the ascending frontal, a cyst about the size of a filbert was found situated partly in the cortical and partly in the white substance of the brain, and was surrounded by a narrow zone of encephalitis. In manipulating the medullary substance, in process of removal of the cyst, the patient, while under chloroform, had a convulsion confined to the same group of muscles as were affected in his fits prior to the operation. The convulsion ceased with the removal of the cyst, and he has never had another. The wound healed firmly under one dressing, the paralysis of the facial muscle soon disappeared, and he has since been constantly at work. The power of the right arm has also been increased. Possibly the cyst might have caused indirectly slight pressure on, or had set up an inhibitory action of, the middle portion of the ascending frontal. This case affords important evidence of the position occupied by the facio-lingual centre in man, and on the whole corroborates that assigned to it by experiments on the lower animals. It was also interesting to note when this part of the brain was exposed and irritated that it gave rise to the same kind of convulsion.

9. *Protospasm of the Hallux preceded by Sensory Impressions and followed by Paralysis.*—In another instance, a very definite protospasm, accompanied by a sensory impression, gave the key to the localisation. It occurred in a girl aged seven, the subject of frequently recurring attacks of severe epileptiform seizures, followed by paralysis of the affected parts. At the onset of these

attacks, patient first experienced in the great toe of the right foot a painful sensation of such severity as to cause her to scream out. Shortly after, that toe was firmly extended in tonic spasm, which lasted about five minutes. Sometimes this ended the attack. More frequently it was followed by clonic contractions of the muscles of the right foot, leg, and thigh, where the convulsions often terminated. Occasionally they extended to the muscles of the trunk, then to those of the right side of the face and right arm, the contractions ceasing in the order of accession. Rarely did they involve the opposite side, and when they did, patient lost consciousness. Though there was motor paralysis in the affected parts, the cutaneous sensibility remained unimpaired. From the great number of fits which patient had, following each other in rapid succession, occurring in parts affected with paresis, the result of former attacks, while the cutaneous sensibility remained unimpaired, and from the limited area affected, it was concluded that the lesion was cortical. The sensory impression in the hallux, followed by tonic and then clonic contractions of the same parts, extending to the lower limb, pointed to the upper region of the ascending convolutions as the area of irritation. From the general condition of the patient and her family history, the lesion was probably tubercular, and if so, might be multiple. During operation the upper portion of the ascending convolutions was exposed, and with the exception of a few tubercular nodules, the size of barley grains, adhering to the vessels over the upper part of the ascending frontal, there was nothing visible on the surface. On careful palpation of the ascending convolutions, there was found in the upper part of the ascending parietal, a circumscribed nodule buried in the cerebral substance, which on exposure by cutting through the grey matter, was seen to be a tubercular tumour, about the size of a hazel nut, which was easily shelled out. As an immediate result, there was prolonged trepidations of an erratic kind, affecting the muscles of the right side of the body, but especially those of the arm and the leg. These were continuous for fully a week, thereafter gradually subsiding. There have been no fits for over a year, and the girl is now in excellent health.

The marked sensory impression which this lesion produced supports Dr. Gowers's opinion that the parts in the so-called motor area subserve a sensory as well as a motor function. The localisation of the movements of the hallux in the upper part of the ascending frontal has not been borne out by this case (unless the minute barley-grain tubercular nodules attached to the vessels in the pia mater could account for the stimulation), the tumour being found in the upper part of the ascending parietal, but the whole lesion could be included in the ring which Beevor and Horsley place on the upper portion of the ascending convolutions.

Other Instances.—A brachial monoparesis, accompanied by sensory impressions confined to the same parts, has already been alluded to, in which, though the centre of both ascending convolutions was involved, yet the chief lesion was confined to the ascending parietal, and implicated both its medullary and cortical substance.

10. *Brachio-crural Monoplegia: Cyst removed from Brain.*—In another, occurring in a boy of three years, a brachio-crural monoplegia, with late rigidity, was present, the result of a traumatism received eight months previously. In it a large thick-walled subdural cyst, containing clear fluid, was found pressing upon the motor convolutions, and a spiculum of bone, detached from the inner table of the skull, was seen to have penetrated the brain. These were removed, and the bone was placed in proper position. The patient made an uninterrupted recovery. The paralysis, with the contractions of the muscles, passed off to a great extent. He could neither walk nor stand before the operation; now he can run about and use his hand well, though there is still paresis in both.

With these data from my own experience, as well as from cases reported by Mr. Godlee, Mr. Horsley, and many others, it is clear that the motor and sensory phenomena form reliable guides to localisation of lesions in the central convolutions.

The Diagnosis of Cerebral Lesions in Non-motor Regions may be made from Sensory Phenomena.—The following instance shows this, and is also an example of the difficulty of finding the exact clue to the lesion and how easily it may be overlooked.

11. *Psychical Blindness the Key to a Lesion in the Angular Gyrus: Removal: Recovery: Medico-legal Aspects.*—A man who had received an injury about a year previously, suffered from deep melancholy, strong homicidal impulses, relieved by paroxysms of pain in the head of indefinite seat. Though the pain was excruciating he welcomed it, as it temporarily dispelled the almost irresistible impulse to kill his wife and children or other people. Prior to receiving this injury he was perfectly free from impulses of this kind, and had led a happy life with his family. Behind the angular process of the frontal there was a slight osseous depression, which could not account for his symptoms. There were no motor phenomena, but on minute inquiry it was discovered that immediately after the accident, and for about two weeks subsequently, he had suffered from psychical blindness. Physically he could see, but what he saw conveyed no impression to his mind. An object presented itself before him which he could not make out, but when this object emitted sounds of the human voice, he at once recognised it to be a man who was one of his fellow-workers. By eyesight he could not tell how many fingers he held up when he placed his own hand before his face, though by the exercise of his volition in the act, and by other sensations,

he was cognisant of the number. He had been in the habit of reading the New Testament, and when he had so far recovered from his injury, he wished to resume his reading. He knew where the book lay near his bed, and could put his hand on it in the dark. One day he stretched out his hand, took the book, recognising it, through the sense of touch, by its smooth leather covers and the deeply-indented letters on its back; he opened it, saw what he considered must be the letters, and the blocking of them into divisions for the words, but they were unknown symbols to him, they conveyed no impression of their meaning, the memory of their signs was gone, it was a sealed book to him. These phenomena, however, gave the key to the hidden lesion in his brain. On operation, the angular gyrus was exposed, and it was found that a portion of the internal table of the skull had been detached from the outer, and had exercised pressure on the posterior portion of the supra-marginal convolution, while a corner of it had penetrated and lay imbedded in the anterior portion of the angular gyrus. The bone was removed from the brain and re-implanted in proper position, after which he became greatly relieved in his mental state, though still excitable. He has made no further allusion to his homicidal tendencies—which previously were obtrusive—and is now at work.

Such cases of complete mind-blindness are rare, and the definite localisation in this case will assist in indicating in man what function the anterior portion of the angular gyrus and the posterior portion of the supra-marginal convolution subserve.

Other cases have been related above; one where a combination of symptoms pointed to a lesion in the frontal lobe, and guided by these a tumour was found pressing upon that area of the brain from which it was successfully removed; in the other, a lesion was definitely recognised from the localising symptoms, as seated in the immediate vicinity of Broca's lobe. But even in such areas as the temporo-sphenoidal lobe, where destructive lesions may exist without localising symptoms, one may occasionally by a process of exclusion definitely localise the lesion as seated in that part.

12. *A Lesion Localised Definitely as Existing in the Temporo-Sphenoidal Lobe.*—A patient exhibiting symptoms of cerebral abcess, had on the left side ptosis, stabile mydriasis, paresis of all the ocular muscles, with the exception of the external rectus, without external squint. On the right side paralysis of the facial muscles, which retained power of emotional expression to a slight degree and the patient power to close the right eyelid by an effort of will, though it remained partially open during sleep. He had also paresis of the right arm, which during the few hours he was under observation before operation had amounted to distinct paralysis. The leg remained normal. There was no diminution of cutaneous sensibility. From these symptoms it was concluded that a single

lesion must be large which could affect at once the third nerve in its course, and the lower half of the ascending convolutions. Second, it was clear that it was not a destructive lesion of large size in the motor area, or the crural centre would probably have been involved, thus causing absolute hemiplegia. The same observation applies with greater force to the crus cerebri, which must be excluded, as the effects of pressure would probably have led to more extensive involvement. Had the pressure even indirectly affected that area from without inwards it would have implicated the parts in the reverse order—the leg first, the face last. The tentorium cerebelli would prevent pressure downwards on the pons. Third, the internal capsule could not be the seat of a large lesion, otherwise hemiplegia with destruction of "Charcot's cross-way" would have resulted. Fourth, though the whole trunk of the third nerve was involved, paresis was alone produced, probably resulting from a degree of pressure. Fifth, the lesion was gradually implicating the motor area from below upwards, and was probably occasioned by pressure and its consequences. The only place where a lesion could be situated, producing all these phenomena just to that precise degree, was the temporo-sphenoidal lobe. It was cut down upon, and in the medullary substance of the temporo-sphenoidal lobe an abscess, containing three ounces of pus, was found, which was evacuated, when the whole of the above symptoms vanished. Three weeks afterwards, the wound was looked at for the first time and found healed.

Can the Motor Area be removed in Large Pieces with Immunity from Serious Consequences?—If this region be of such psychical importance to movement, and destructive cortical lesions in it are followed by secondary degeneration of the motor tracts, then excision of these areas will necessarily induce permanent paralysis, late rigidity, and ultimate structural contracture. The removal of large wedges from the brain, especially in the motor centres, will induce serious effects upon the brain as a whole, causing, during cicatrisation, a dragging and displacement of the neighbouring parts, with final anchoring of the cerebrum to the cicatrix. In an acute ulcerative process rapidly advancing, such as an abscess, none can hesitate to evacuate the pus; it is not the living brain-substance which is removed, but the peccant matter alone. Epilepsy presents quite another aspect. In the presence of a stationary cicatrix, or of a slow-growing neoplasm in the motor area, occasionally producing fits, few would attempt the removal of such a large weight of the motor region as to induce permanent hemiplegia. Even when the fits are much more numerous and aggravated, it is serious to contemplate the production of hemiplegia while attempting the cure of the fits. No doubt these epilepsies, when long continued, especially in early life, are apt to lead to great and extensive instability of the motor cortex, so as to warp

the whole cerebral function, and ultimately involve life itself. Still, how much better is the cure by the removal of a large wedge, involving the greater part of the motor area? How many people would submit to have their upper and lower limbs, on the same side of the body, amputated by disarticulation at their proximal joints—for this is what the hemiplegia amounts to—in the process of cure of their fits? Numerous epileptics have been asked the question by me, but none have expressed their willingness to undergo such a cure. Even had they done so, the circumstances would require to have been exceptional to have induced one to hazard the life of the patient for so poor a result. It is true that corresponding wedges have been removed from the brain of monkeys, and these animals have survived for months thereafter. In men also they have been removed by others; in one instance reported to me the patient remained completely hemiplegic until his death some months after. Nor is the removal of very large tumours and large wedges of brain free from immediate peril to life. In several instances operated on elsewhere, death has ensued—one while the tumour was being removed from the brain, and one immediately after the completion of the operation.

In cerebral surgery, not only does one require to localise the lesion, and to select suitable cases, but also, after exposing the brain and its lesion, to judge when to advance and when to hold the hand. In a case rightly localized from the motor symptoms, a tumour was exposed in the leg and arm centres, on the left side of the brain; but its dimensions were such as to cause me, after carefully contemplating them, to refrain from removing it, as it would have led to a hemiplegia of a much more pronounced character than was present. Instead, the vessels which supplied it with nutriment and which ran into its substance, from the surface, were all ligatured, in the hope that this would effect a restraining influence on its growth. The patient recovered and is considerably improved. Though the fits are not quite cured, they are not so severe as formerly, and are somewhat altered in character.

Anchoring of the Brain and some of its Consequences.—When injury has been inflicted on the surface of the cerebrum, followed by plastic effusion and cicatricial formation, the superficial substance is apt to become soldered to the membranes when these remain intact, which in turn may be soldered to the skull, or in the event of their detachment, the brain may become directly adherent to the bone by means of cicatricial adhesion. Thus, the surface of the brain becomes anchored or soldered to its rigid walls. It has no longer the free play within its water bed to expand and contract according to the varying states of the circulation. Each variation produces a dragging of the brain at this spot, and through it the whole hemisphere at least is affected. Any sudden physical effort pulls on the brain, producing a slight shock,

a momentary disturbance, just as if the cerebrum had received a blow. Vertigo results. People affected in this way cannot rise up quickly, or perform any sudden movement of the body or head, without experiencing a sensation of giddiness, which sometimes causes them to drop. Consequently, they are often incapacitated from pursuing their usual avocations.

Following upon this, the grey matter of the cortex, immediately surrounding the cicatrix, by the incessant movement is apt to become unstable and to produce fits. Some cases of traumatic epilepsy are thus caused. Further, if the cortical irritation be continued, encephalitis is occasionally produced, often appearing in a chronic form and long remaining so, though susceptible of being lit up into an acute affection. If the temperature remains high, active interference is apt to induce an extension of the encephalitis. Operation in such cases should be, when possible, postponed. The disregard of this advice has, to my knowledge in one instance, hastened the fatal issue, encephalitis becoming rapidly general.

False Hernia Cerebri.—It is true that, round many neoplasms, there is a zone of encephalitis, and, should this be extensive and of the nature of red softening, false hernia cerebri is prone to form. It was supposed that false hernia cerebri was entirely due to decomposition, many recent writers averring that it cannot occur unless when operations are conducted non-antiseptically, basing their belief on experimental investigations conducted on brains in a physiological state. Had they concluded that the formation of false hernia cerebri, after operations, was principally caused by decomposition, and always so when it occurred after operations on a physiological cerebrum, they would have been right. The consistence of false hernia cerebri is identical with red softening of the brain, occurring in idiopathic affections in which there had been no operation. In one instance, in which trephining was performed for the relief of pressure causing total hemiplegia, and where the symptoms indicated either acute encephalitis or abscess, or both, the moment the dura mater was opened a large mass of red encephalitis protruded through the membranes, forming a false hernia cerebri on the surface of the scalp. This encephalitis was not occasioned by septic matter introduced through a wound, as it occurred the moment the wound was made. Around neoplasms red softening sometimes exists, and interference might possibly occasion an extension of the affection, though, were the operation conducted with strict antiseptic precautions, the possibility of its formation would be reduced to a minimum. With this exception, there has been no false hernia cerebri after any of my operations.

Re-implantation of Bone to fill the Hiatus in the Skull left by Injury or made by Operation.—Osseous defects in the cranial wall had hitherto remained permanent, the surgeon making no effort to fill the gap. The brain, in the majority of cases, had thus been

exposed, the thin membrane forming an insufficient covering, the patient being doomed for the remainder of his life to wear some kind of plate as a protection from injury. Since 1873, the portions removed by me from the skull have been carefully preserved, rendered aseptic, divided into minute fragments, and reimplanted. Whenever there has been immunity from suppuration these have grown, and the continuity of the osseous wall has been preserved throughout. In a case of injury, nearly one-half of the left anterior portion of the skull was broken into fragments, which lay in a confused mass, mixed with brain substance, shreds of membrane, hairs, *débris* of lime and blood. The portions of bone were all rendered aseptic, divided into fragments, and replaced, quite a mosaic work being thereby formed. On the tenth day, a portion of the damaged scalp having sloughed, exposed four of the reimplanted pieces, two of which, lying side by side, presented a striking contrast, one being suffused with the pinkish blush of life, the other with the pallor of death. With the exception of two fragments which shed, all the others remained, grew, and now form a firm osseous wall, affording complete protection.

The Note Elicited on Percussion of the Skull an Aid to Diagnosis of the Consistence of Intracranial Contents.—When the skull is intact and the ventricles distended with fluid, such as may arise in consequence of tumour in the cerebellum, exercising pressure on the fourth ventricle, the percussion note elicited affords indications of the altered consistence of the intracranial contents. In some instances this note has been found prior to the exhibition of other symptoms indicative of the presence of tumours in the middle lobe of the cerebellum; it, however, became distinct at a later stage. Post mortems have fully borne out the diagnosis. The percussion note, when properly fenced, is, therefore, an aid to the altered consistence of the intracanial contents. It is clear that it will be of most value in early life in the diagnosis of tumours of the cerebellum.

Statistical Résumé.—Of twenty-one cerebral cases (exclusive of fracture of the skull with brain lesions or other immediate effect of injury) in which operations have been performed by me, there have been three deaths and eighteen recoveries. Of those who died, all were *in extremis* when operated on. Two were for abscess of the brain, in one of which the pus had already burst into the lateral ventricles; in the other suppurative thrombosis of the lateral sinus had previously led to pyæmia and septic pneumonia. The third case was one in which there existed, besides a large subdural cyst over the one hemisphere, extensive softening at the seat of cerebral contusion on the opposite hemisphere, accompanied by œdema of the brain. Of the eighteen who recovered, sixteen are still alive in good health, and most are at work, leaving two who have since died, one eight years after the operation, from Bright's disease, she

in the interval being quite well and able to work; the other forty-seven days after the operation, after the abscess was perfectly healed, from an acute attack of tubercular enteritis.

Operations for the Relief of Paraplegia caused by Pressure on the Spinal Cord.—*Six cases in which the Posterior Arches of the Vertebræ have been Removed.*—Turning to another portion of the nervous system, to which only brief allusion can be made, it is found that certain sensory and motor phenomena, due to lesions within the spinal canal, are amenable to operations, which are attended by a measure of success sufficient to offer a prospect of relief to a distressing, and hitherto regarded as a hopeless, class of sufferers. The spinal membranes and the cord itself can be exposed, and neoplasms and encroachments upon the lumen of the canal may be removed therefrom without unduly hazarding life. Such interference is unsparingly condemned by writers on the subject, their remarks, however, being applied to injuries, as no such operations have been hitherto contemplated in idiopathic cases. They contend that they are, first, full of danger, being difficult, prolonged, and attended by profuse hemorrhage; secondly, that the operation could hardly benefit the patient; and, thirdly, that no one had yet been able to present a successful case. Each of those points has now lost its validity.

The first operations of this kind were undertaken by me for the relief of paraplegia due to angular curvature of the spine. In such cases pressure may be exerted on the cord either by connective tissue neoplasms, or by direct displacement of the bodies of the vertebræ, both lessening the lumen of the canal. By lifting the laminæ from the affected part, the tumour could be removed, and relief given at the same time to the compressed cord, were the osseous walls in front found to encroach upon the calibre of the canal. This was successfully carried out by me first in 1883. By the making of an incision on the tips of the spinous processes, and severing the tendinous connections, and then shelling the soft parts from the bone with periosteal elevators, the hemorrhage was so trifling as to be for the most part arrested by sponge pressure, and with suitable instruments the operation, though demanding care, was easy to perform.

Case of Paraplegia with Incontinence of Urine and Fæces, due to Connective Tissue Tumour at Seat of Angular Curvature of Spine, completely Cured by Removal of Tumour and Laminæ of Vertebræ.—In 1882, a boy, aged 9, came under observation, suffering from complete sensory and motor paraplegia, with incontinence of urine and fæces, which had existed for two years previously, but had been absolute during the last eighteen months. For three years he had had angular curvature of the spine, most marked between the fifth and seventh dorsal vertebræ, for which he had been treated by extension and plaster jackets. When seen by me the

curvature had become fixed by ankylosis of the bodies of the vertebræ. Treatment by extension and plaster jackets was, however, tried again, under direct supervision, in the hope of amelioration. It proved futile. The limbs were livid and cold, affected with marked spastic rigidity and with wasting of the muscles. The symptoms exhibited pointed to irritation of and pressure on the spinal cord about the level of the sixth dorsal vertebra. The paralysis having existed slightly for two years and markedly for eighteen months, and showing no signs of amelioration under ordinary treatment, this operation was deemed expedient. Dr. Alex. Robertson saw this case and agreed in the hopelessness of any other procedure than operation. On May 9th, 1883, the laminæ of the fifth, sixth, and seventh dorsal vertebræ were removed. There was no pulsation in the portion of the cord exposed. Between the theca and the bone there was found a fibrous neoplasm of one-eighth of an inch in thickness, which was firmly attached to the theca and covered about two-thirds of its circumference. This was carefully dissected off. The cord was then able to expand backwards, and its pulsations, which up to this period were absent, began to show themselves, especially opposite the fifth dorsal. Twenty-four hours after the removal of the pressure the limbs had lost their livid colour, were distinctly warmer, the spastic rigidity had greatly lessened, the sense of tickling the soles had returned, and that of touch had improved. The first return of movement was observed eight days after. Soon he had perfect control over his sphincters. Six months subsequently he was able to go about without support. Five years afterwards he walked three miles to pay me a visit. He attends school regularly, joins in all the games, including football, and he says he feels quite strong.

A Second but more Aggravated Case.—In 1884, another case was seen of a somewhat similar kind, though much more aggravated, the symptoms being so far advanced as to indicate organic changes in the cord itself, which rendered operation almost hopeless. It was only on the urgent and touching appeal of the girl herself that the operation was undertaken. A dense connective tissue tumour existed between the bone and the theca, which was so firmly adherent to both that in some places the theca was elevated along with the neoplasm. The portion of the cord thus exposed was shrunken to about half its normal dimensions and lay like an inanimate rod. After the elevation of a sufficient number of laminæ to expose a portion of the cord which pulsated, the pulsations were communicated to this rod, pushing it from above downwards, but there were no distensile pulsations in the rod-like part of the cord. From the whole appearances presented at the operation, it was considered that there was no hope of her recovering from her paralytic state. However, ten hours after the

operation the limbs had lost their lividity, felt warm to the touch, and the patient said she experienced a sensation "as if she were dreaming her legs were on and hot water was running through them." From the fourth day after the relief of pressure she had continence of urine and fæces, for which alone she declared she would willingly have undergone the operation. Sensation quickly returned to the limbs, motion very slowly. Six months after she could move her limbs freely. Eight months subsequent to the operation she walked a quarter of a mile, stated that she could perform many light duties in the house, besides attending to herself. She has since been very well and able to enjoy life. A third case was also successful, but two others have not been so; one succumbed a week after the operation, the other some months later to an attack of general tuberculosis. In both of these the temperature was high prior to the operation and was subject to exacerbations, indicating an activity in the tubercular disease at some part distant from the ankylosed angular curvature. Since this experience no case has been deemed fit for operation in which the temperature did not run an even, regular, and continuously afebrile course.

Abscess in the Posterior Mediastinum Evacuated successfully.—In connection with these cases an abscess in the posterior mediastinum which was exercising pressure on the heart and bronchi, and threatened life, was evacuated with complete success.

Compression of the Cord from Traumatism.—Another class of cases is that of localised compression of the cord, arising from traumatism. Traumatic lesions are as a rule so gross, and the destruction so complete, that in such operative treatment can be of little service. Still, there are cases in which traumatism has produced localised pressure, primary or secondary, which can be relieved.

Paraplegia from Traumatism, Cured by Elevating Connective Tissue Tumour and Depressed Arch of Twelfth Dorsal Vertebra.—From a coal-pit accident a man, 22 years of age, received a severe injury to the spine, at the level of the lower dorsal vertebræ, which caused absolute motor paralysis with incontinence. There was marked hyperæsthesia of the affected parts, which increased in severity during the first three weeks, so that he could not bear to have the floor shaken or his limbs touched. Between the third and fifth week a rapid change took place. At the termination of that period the muscles of the lower limbs would not respond to electricity, they had become so shrunken and wasted that the contour of the bones stood prominently out, and notwithstanding massage of the limbs, after the cessation of the pain, the flexor muscles had markedly contracted, causing drooping of the feet and toes and fixation of the joints. Later the skin over the bony prominences became red; pressure points and bed-sores formed, irrespective of the most scrupulous attention; the urine became ammoniacal, and his temperature ran up. It was evident that a

fatal issue was imminent, unless an attempt to relieve the pressure on the spine were at once made. In February, 1885, this was done. The lower dorsal and the first lumbar vertebræ were exposed. The arch of the twelfth dorsal was found fractured and slightly depressed, and between it and the theca there existed a connective tissue tumour, measuring nearly a quarter of an inch in antero-posterior diameter, and extending from the eleventh dorsal to the second lumbar vertebræ. Both above and below the twelfth dorsal the tumour gradually shaded off to about one half of its thickness at that point. It was confined to the posterior aspects of the canal. This tumour was carefully dissected from the theca. The same night there was a decided improvement in the warmth of the lower limbs. He began to move his toes on the third day. A month afterwards the contracted tendons about the ankle and feet were extensively tenotomised to relieve the structural contractions, after which motor power rapidly increased. He was soon able to walk with support, which a year subsequently he discarded, and now he can move about with ease, but with a paraplegic gait.

Here are, therefore, six cases in which elevation of the posterior laminæ of the vertebræ has been performed. Four of these have completely recovered, and two have died, one from extension of tubercular disease, months after the operation, and after the wound had healed, leaving one in which the operation possibly hastened the death of a patient, who was otherwise in a painfully helpless and hopeless condition.—*British Med. Jour., Aug.* 11, *p.* 302.

ORGANS OF RESPIRATION.

62.—THE OPERATION FOR INTUBATION OF THE LARYNX.

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Intubation of the larynx, for which we owe a debt of gratitude to Dr. O'Dwyer, of New York, is a new operation now in its infancy, and only recently has the most important objection to the operation been overcome—the difficulty of swallowing.

The instruments consist of gag (Fig. 1), an introducer (Fig. 2), an extractor (Fig. 3), and five tubes of different sizes (Fig. 4).

The physician who wishes to become expert in performing this operation should first thoroughly familiarise himself with the instruments. One should handle the instruments frequently, and practise working the spring of the introducer, which, by the way, should be operated by the thumb, and not by the forefinger. The extractor should be held in the same manner. It will be a help if one practises introducing the tube into the closed hand of another, detaching the tube, and pressing it down out of sight. As the

extraction of the tube is even more difficult than its introduction, it is important also to practise extracting the tube from the closed hand, and to become accustomed to the feeling of the head of the tube, and to appreciate the form of the opening in whatever position it may be placed. The instrument should be held lightly, and the operation should be performed with the utmost gentleness. I have no sympathy for those who declare the instruments are not strong enough, and who break their gags, their introducers, or extractors. The same quickness and gentleness that is employed in passing a catheter should be exercised in passing a tube into the larynx. No force should be used, no anæsthetic is required, and the operation should not require longer than from five to ten seconds. It is not only important to become perfectly familiar with the instruments and the details of the operation, but, if possible, with the anatomy of the larynx by practical work upon the cadaver.

In performing the operation, the physician should first select a tube suitable to the age of the patient, the smallest being suitable for a child under 2 years; the next in size is appropriate for one between 2 and 4; the next for one from 4 to 6; the next from 6 to 8; the next from 8 to 10; and if the extra tube is included in the set, it is appropriate for a child from 10 to 14 years. A suitable tube, however, may be selected by reference to the scale which accompanies each set.

The tube should be threaded with braided silk or linen thread, making a loop about sixteen inches in length. The obturator should then be screwed upon the introducer, and the tube attached (Fig. 2). The instrument is then ready for use, and should be placed upon a table within easy reach. The patient, properly wrapped, should be held upright in the lap of the nurse closely against the left chest, with the head resting on the shoulder. The nurse should sit upright in a straight-backed chair, and the patient should be held firmly and not permitted to slide down. The forearms of the child should be crossed in front, and the nurse should grasp the wrists. An assistant, standing behind, should hold the head securely and slightly backwards. The gag should be introduced in the left angle of the mouth, well back between the teeth and widely opened. The operator should then quickly seize the introducing instrument with the tube attached, hook the loop of silk over the little finger of the left hand, and introduce the index finger of the same hand, closely followed by the tube. He may simply hook the epiglottis forward with the index finger, and guide the end of the tube gently over it, when, by making an abrupt turn, he will pass the tube into the larynx if he has been careful to keep in the median line; or he may pass the index finger over the epiglottis and upon the arytenoid cartilages, and guide the end of the tube into the larynx. In either case the end of the tube

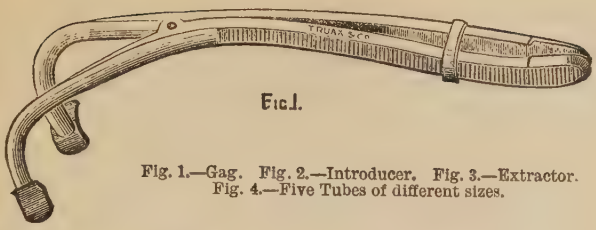
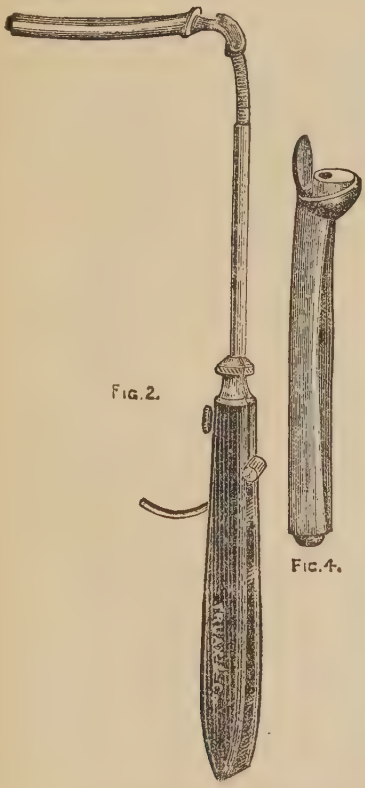
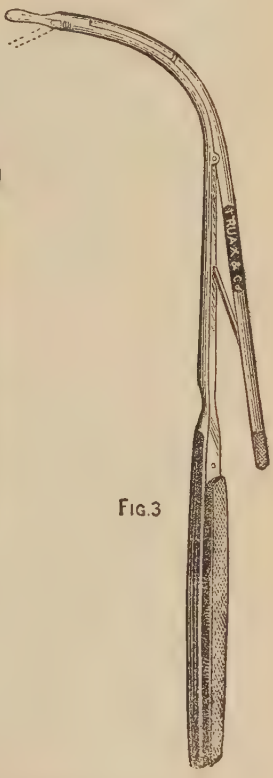


Fig. 1.—Gag. Fig. 2.—Introducer. Fig. 3.—Extractor.
Fig. 4.—Five Tubes of different sizes.





Dr. Waxham's Instruments for Intubation of Larynx.

should pass under the tip of the finger—not over it or by the side of it, but directly under it. The moment the end of the tube is passed into the larynx, it should be detached from the introducer by pressing forward on the slide, and as the instrument is removed the tube should be pressed down into position by the finger, which should still remain within the pharynx. No thought should be given to the handle of the introducing instrument, but the mind should be concentrated upon the end of the tube. This should describe a gentle curve until it has passed over the epiglottis, and then it should remain stationary for an instant while the handle is quickly elevated, so that the tube may go down at a right angle.

That it has entered the larynx will be indicated by violent coughing, and by easy respiration. If it has passed into the œsophagus no relief is given, there is no violent coughing, and there is gradual shortening of the loop as the tube gravitates towards the stomach. If quite certain that it has entered the larynx the gag should be removed, and the loop should be placed backward over the ear. The operator should wait a few minutes to make sure the tube is in position, and to allow the cough to expel the ropy mucus and softened membrane. He should then

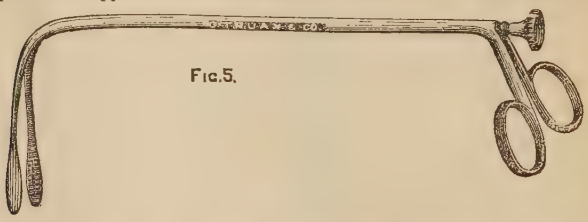


Fig. 5.

cut the loop near the mouth, replace the gag, and introduce the index finger of the left hand until it reaches the head of the tube; by pulling on one end of the loop it is quickly removed, leaving the tube within the larynx.

In introducing the tube, if false membrane is crowded down ahead of it which cannot be expelled by coughing, then the tube should be removed at once. If it cannot then be expelled, the trachea forceps, which I have had constructed for this purpose, (Fig. 5) should be introduced and the membrane removed. If this is not successfully accomplished, and the patient seems about to suffocate, tracheotomy should at once be performed.

In extracting the tube the patient should be placed in the same position as when it was introduced. The gag should be placed as before, and the index finger of the left hand introduced until it reaches the head of the tube. The extractor in the right hand should quickly follow the finger, the point of which should be guided into the tube. By pressing on the lever above the handle

the jaws of the instrument are separated, thus holding the tube securely while it is removed. If the tube cannot be removed after a few gentle and careful attempts, then an anæsthetic should be given. In performing the operation a rubber finger cot with the end cut off should be placed on the index finger, to prevent injury from the child's teeth provided the gag should slip.

As an additional precaution, a pad of antiseptic gauze should be placed over the mouth and nostrils of the operator, and secured by a rubber tape passed round the head.

The operation presents many advantages for our consideration. The operation may be performed by the expert quickly, almost instantly. There is no shock, no hemorrhage, and the relief is as prompt and complete as after tracheotomy. The greatest advantage is the fact that we can always gain the consent of parents, and we will thus save many lives where tracheotomy would not be permitted. The question has been asked, "Should we perform tracheotomy before the occurrence of dyspnœa?" I think we are not justified in resorting to any surgical measure, either to tracheotomy or intubation, until urgent dyspnœa has taken place, and unti it is evident that it is the only resource.

As I have before stated, all the objections to intubation have been overcome, for, by the use of the artificial epiglottis, it is now possible for patients, if held in the supine position with the head completely thrown back over the nurse's knee, to take an abundance of food, both liquid and solid. For æsthetic reasons, therefore, we should recommend intubation. It remains to be shown whether the results compare favourably with those of tracheotomy. Our estimate of tracheotomy will depend in a large measure upon the success it has attained. If one has saved 30, 40, or 50 per cent. of his cases by the operation, he will be reluctant to accept of anything new; but those who have met with poor results or invariable failure will gladly accept an operation that promises so much as intubation. I have now performed intubation 160 times, with 44 recoveries, or 28 per cent. I have collected the reports of 1,072 operations performed in various parts of the United States, with 287 recoveries, or 27 per cent. At the last International Medical Congress, Dr. Max J. Stern reported a large number of cases of tracheotomy performed in various parts of the world, with recoveries amounting to 26 per cent. Let us compare the results with those of intubation.

Tracheotomy.		Intubation.	
Age.	Per cent.	Age.	Per cent.
Under 2 years	3 ...	under 2 years	15·62
Between 2 and 2½ years ...	12 ...	between 2 and 3 years ...	19·46
„ 2½ „ 3½ „ ...	17 ...	„ 3 „ 4 „ ...	30·00
„ 3½ „ 4½ „ ...	30 ...	„ 4 „ 5 „ ...	32·65
„ 4½ „ 5½ „ ...	35 ...	„ 5 „ 6 „ ...	33·92
Over 5½ years	39½ ...	over 6 years	43·33

It will thus be seen that intubation holds its own with tracheotomy at all ages, and with the young and feeble children it offers advantages far superior to tracheotomy.

As all the objections to the operation have now been overcome, we may expect far better results in the future than in the past.—*British Med. Journal, Sept.* 29, 1888, *p.* 716.

63.—REPORT ON INTUBATION OF THE LARYNX.

By F. E. Waxham, M.D., Chicago, U.S.A.

[Dr. Waxham's Table, to which reference is made in the course of this paper, is not reproduced here. The summary of the author's cases shows:—Total number of cases, 150; recoveries, 41; percentage of recoveries, 27·33; average age of all cases, 3 years 11 months and 3 days; average age of those recovering, 4 years 3 months and 24 days; average age of fatal cases, 3 years 8 months and 7 days.]

Intubation of the larynx while not perhaps fulfilling the expectations of some has, nevertheless, within the past year gradually grown in favour, and more extended experience has proved the full value of this procedure. An occasional physician has met with such signal failure as to disparage the operation and to abandon it. The same however may be said of tracheotomy, and it is no argument against the operation.

As the full value of an operation can be determined only by a careful investigation of the results in quite a number of cases, I here present a record of my first 150 operations, and although this number is not large it is sufficient to fairly demonstrate that intubation of the larynx possesses nearly, if not quite all the advantages claimed for it. In none of the following cases has the operation been performed until severe and increasing dyspnœa has demanded surgical interference. In a few instances where I have been called in consultation I have declined to operate, believing that the patients would recover without it. Frequently I have delayed operating during my first visit, but being subsequently called found it necessary to do so in order to further prolong the life of the patient. In the great majority of cases I was called in consultation with other physicians and the operations performed as a last resort, after all other modes of treatment (excepting tracheotomy) had been found useless and the patients practically given up to die.

In the New York Medical Record, of October 29, 1887, Dr. O'Dwyer reports 50 cases, with 12 recoveries, and in the New York Medical Journal, of January 14, 1888, an additional 50, with 15 recoveries, making a total of 100 cases, with 27 recoveries, or 27 per cent.

I have within the past year collected, by inquiry and by letter, as well as from published reports, records of 1072 operations performed in various parts of the United States, with 287 recoveries,

or 26·77 per cent. In 661 cases the ages were given and were as follows:—

No. of Cases.	Age.	Recoveries.	Percentage.
31	Under 1 year	5	16·12
97 ...	1 year ...	15 ...	15·46
149 ...	2 years ...	29 ...	19·46
140 ...	3 ,, ...	42 ...	30·00
98 ...	4 ,, ..	32 ...	32·65
56 ...	5 ,, ...	19 ...	33·92
27 ...	6 ,, ...	10 ...	37·03
32 ...	7 ,, ...	16 ...	50·00
12 ...	8 ,, ...	5 ...	41·66
10 ...	9 ,, ...	5 ...	50·00
2 ...	10 ,, ...	1 ...	50·00
5 ...	11 ,, ...	2 ...	40·00
2 ...	14 ,, ...	0 ...	00·00
Total, 661		181	27·38

The most unpleasant feature of intubation has been the inability of the patient to swallow liquids. Solids and semisolids frequently have not been relished or properly digested, and the craving for water has often been so great that parents have sometimes regretted the operation and have blamed the physician for prolonging life and adding an additional cause of suffering. It is undoubtedly true that the falling of fluids and solids through the tube and into the bronchi is frequently the cause of broncho-pneumonia. I have long been at work endeavouring to devise some means of covering the upper opening of the tube during deglutition, and thus overcoming this objectionable feature of intubation. The first device for this purpose was the rubber epiglottis exhibited to this Society one year ago. While this arrangement was satisfactory in many cases yet in others it would often fail on account of becoming disarranged during the introduction of the tubes, or later from coughing. After much thought and many experiments a metal epiglottis was devised as a substitute. This metal epiglottis is controlled by a spring of gold wire inclosed in the hinge at the upper end of the tube. As the patient swallows, the metal cap is pressed down over the opening of the tube, and solids and fluids are prevented from passing into it. To prevent sudden suffocation in case any accident should occur to the spring, a slot is made in each side of the head of the tube and near the rim. I have used this device with great satisfaction, and the ability to swallow liquids is particularly noticeable in the older children. They will take an unlimited amount of fluid without difficulty, which they cannot do with the open tube without the most violent coughing. With infants the difference is not noticeable in all cases, many however will swallow without any difficulty whatever. In giving liquids it is better to give them from a spoon with the head inclined forwards.

It would naturally be inferred that this metal epiglottis projecting upwards and lying against the true epiglottis would cause greater irritation and more coughing than the open tube, but I have not observed this to be true. The following cases, only two out of many equally happy in termination, illustrate the advantages of this device.

March 2, 1888, I was called by Dr. B. D. Foster to perform intubation on a little girl 5½ years old. She had been suffering from diphtheria for several days, when the larynx became involved. Both tonsils and uvula were covered with diphtheritic membrane, the urine was loaded with albumen, and the dyspnœa from laryngeal obstruction was intense. The loud stridor of croup was heard all over the house, and the case seemed as hopeless as could have been well selected. A tube with the metal epiglottis was introduced, giving prompt and entire relief to the difficult breathing. The child revived and took liquid nourishment without the least difficulty. It was a great comfort to be able to give this patient an abundance of water. Milk and brandy were taken freely, without which I am confident recovery would not have resulted, as the child was greatly prostrated. The case progressed favourably, although the urine continued to be loaded with albumen. Forty-eight hours after the operation she ejected the tube, together with a membranous cast. The patient improved somewhat and the respiration remained comfortable without the tube for three days, although on the second day she was taken suddenly with a choking spell and the parents thought she was about to die. After struggling for a few moments she ejected a large piece of false membrane which gave her relief. The third day after the rejection of the tube the gradual return of the dyspnœa, due to reformation of membrane necessitated its reintroduction. The dyspnœa at this time had become almost as intense as when the operation was first performed. The child again revived and continued to improve for three days when the tube was removed. The albuminuria gradually disappeared, and the patient made a perfect recovery.

April 13, 1888, I was again called by Dr. Foster, to operate upon a boy 3½ years old. The patient had been sick about one week with diphtheria of a mild type, when the larynx became invaded, and the usual symptoms of croup followed. At the time of the operation the symptoms were urgent. The pulse was rapid, the respiration rasping, with the stridor heard both on inspiration and expiration. There was sinking in of the walls of the chest with every inspiration, and the patient was bathed in perspiration. As my two smallest tubes in the set were in use I was obliged to introduce a tube suitable for a much older child. The tube with a metal epiglottis was employed and the urgent symptoms were entirely relieved. On account of the large size of the tube fluids

could not be taken without some coughing, but solids and semi-solids were swallowed without difficulty. One thirty-second of a grain of bichloride of mercury was given hourly, well diluted, and a steam atomizer constantly employed. The child did remarkably well for two days, when there was a partial detachment of membrane below the tube and the respiration suddenly became greatly embarrassed. I was hastily summoned, but found the child again breathing comfortably. There was, however, a peculiar, loose, hoarse cough, indicating false membrane below the tube. Fearing sudden suffocation, from detachment of a large mass of false membrane, the tube was removed, when the child after coughing and strangling for a moment, expelled a large membraneous cast of the trachea. As the respiration seemed comfortable without the the tube, it was not at once reintroduced. Twelve hours later, however the membrane reformed, and returning dyspnœa again rendered it necessary. A smaller tube was introduced and the patient instantly relieved. With this tube he was able to take liquids without the least difficulty, which rendered it possible to continue with the medicine. The comfort of the child was perfect for twelve hours, when the tube was ejected with a small piece of membrane. Urgent dyspnœa did not return for several hours, but finally, however, it became necessary to again introduce the tube, and when this was done the respiration ceased, the patient became blue and it was necessary to at once remove the tube. The trouble was obvious; membrane had been crowded down below the tube. As the tube was removed another membranous cast was expelled. The simple introduction and removal of the tube was sufficient to detach the membrane and to relieve the urgent dyspnœa. The patient now passed twelve hours without the tube very comfortably, when it again became necessary to introduce it. It was retained for twenty-four hours, during which time he took an abundance of nourishment and water without any annoyance. Indeed it was observed that he took more nourishment and with less difficulty with the tube than without it. The tube finally was expelled, together with another piece of membrane that had become detached below it. The patient now passed eighteen hours without the tube. While the respiration was more or less embarrassed during this time, yet it was hardly sufficient to call for interference until the expiration of this time, when dangerous dyspnœa returned. The tube was again introduced, and worn with the same comfort for one night when it was again expelled with a small patch of membrane. The cough now became loose and considerable membrane was expectorated in small pieces in the form of muco-pus. The dyspnœa did not return and the boy made an excellent recovery.

I have just received a letter from Dr. O'Dwyer, in which he says: "I received the tubes with artificial epiglottis, which I have used in one case at the asylum, and the result as far as swallowing was

concerned, was most satisfactory. In fact, I never saw a child with the ordinary unprotected tube swallow anything like as well. The old nurses, who are so thoroughly familiar with this subject, uniformly agreed upon this point. There is no doubt that this artificial epiglottis will be an immense improvement in the operation."

The metal epiglottis which renders it possible for patients to swallow liquids will, I am convinced, increase the popularity of the operation and enable us to save a larger proportion of patients.—*Journal of American Med. Association, June* 16, 1888, *p.* 739.

64.—TREATMENT OF EMPYEMA OF THE MAXILLARY SINUS.

By Adolf Bronner, M.D., Surgeon to the Eye and Ear Hospital, Bradford.

The maxillary sinus is a cavity of the shape of a triangular pyramid, with the base towards the nose and apex towards the malar bone. In children it is very small, and in adults it varies much in size, even in the same person. It can contain from one to eight drachms of fluid. The sinus communicates with the nasal cavity in the middle meatus—that is, between the middle and lower turbinated bones. The maxillary foramen, as we will call it, together with the frontal foramen or opening of the frontal sinus, form the so-called infundibulum. This is an oval aperture, of about the size of a small lentil, in the mucous membrane of the middle meatus, just under the centre of the middle turbinated bone. It lies between the uncinate process and the ethmoidal bone. The osseous aperture—that is, the opening formed by bony structures alone—is much larger, and partly covered by mucous membrane. Behind the infundibulum, and lower down, there is very often another opening, just over the middle of the lower turbinated bone, often called the accessory foramen. It is situated between the uncinate process and palate bone, and is, like the maxillary foramen, much larger in the bony skeleton. In nine cases out of ten it is quite covered with mucous membrane. We thus see that the wall between the middle meatus and maxillary sinus is in two places composed only of mucous membrane. To this important fact we shall refer when discussing the various methods of opening the sinus.

The symptoms of empyema are in acute cases very evident and easy to recognize. In chronic cases, however, the symptoms are often very obscure indeed, and the disease is very frequently overlooked. Generally, the patients complain of dull aching pain over the cheek, often of toothache (this is a very common complaint), of megrim, and of an offensive discharge which passes from the nose, especially if the head is bent down, or from the posterior nares into the mouth and throat. Sometimes there are no definite symptoms whatever, and we simply have a chronic purulent or

hypertrophic rhinitis. If these affections often recur in spite of treatment, and especially if they are unilateral, there is sure to be some disease of the maxillary sinus, or more rarely of the ethmoidal cells. Just as in cases of one-sided recurrent conjunctivitis we ought always to look out for an affection of the lacrymal sac, so ought we in cases of one-sided recurrent rhinitis to look out for an affection of the maxillary sinus.

As regards treatment, there is, from a surgical point of view, only one method: to let out the pus, and syringe and drain the sinus till there is no more abnormal secretion there. If the pus should point at any place, of course let it out there. In ordinary cases, the sinus can, roughly speaking, be opened from the nose (middle or lower meatus) or from the mouth (canine fossa or alveolar process). The former method—i.e., to open the sinus from the interior of the nose—seems to me to be vastly superior to any other. Hartman of Berlin, and Stoerck of Vienna, advocate the method of syringing out the sinus from either of the natural foramina in the middle meatus, and, if these be not large enough, to enlarge them. We have seen that the wall separating the middle meatus from the sinus is very thin and partly composed of mucous membrane only, which in many cases of diseases of the nose is often absent, thus leaving a large and free opening between the nose and the sinus. For syringing out the sinus a common Eustachian catheter or small silver bent tube can be employed. The patient feels the fluid passing into the sinus, so that one can be sure when the proper opening has been reached. The advantages of this method are—that (1) it is the most natural way of syringing the cavity, as no new opening has to be made; (2) it is very often simple, and (3) not at all painful. The disadvantages are that (1) the opening is high up in the sinus, and it is therefore difficult to drain and syringe out properly; and (2) the nostril is often very narrow, so that it is difficult to introduce an instrument. Mikulicz, of Krakau, proposes to open the sinus by perforating the bony wall between it and the lower meatus, just under the middle of the lower turbinated bone. He uses a special instrument for the purpose. He holds this method to be superior to the method advocated by Hartman and Stoerck for the following reasons: (1) The opening is lower down in the sinus than the natural opening, and it is therefore easier to drain the cavity through this opening; and (2) there is not so much danger of wounding the orbit. In opening the sinus from the alveolar process, the first or second molar tooth is removed, if necessary, and a thick trocar or probe is passed through the alveolar into the sinus. The advantages of this method are: (1) The sinus is opened at its lowest part and can therefore be drained and syringed very efficiently; (2) the field of operation can be overlooked. The disadvantages are (and these seem to me to be very great): (1) The pus, &c., pass out into the mouth, giving

rise to much nausea, sickness, &c.; (2) the opening readily closes up; (3) foreign bodies, especially particles of food, easily get into the sinus and keep up the suppuration; (4) the alveolar process is often very thick and hard to pierce; (5) there is danger of wounding the orbit; (6) a sound tooth has often to be removed; (7) a cavity is made to communicate with the mouth, which nature intends to communicate with the nose only; and (8) the operation is very painful, and an anæsthetic is generally necessary. The mode of treatment I should propose would be: (1) if pus points anywhere, open the sinus at that place; (2) in all other cases try and make use of or enlarge the normal opening in the middle meatus; (3) if this cannot be done, operate as proposed by Mikulicz. The alveolar process should, I think, be perforated only (1) in very acute and painful cases; (2) if the nostril be narrow and there be not room enough to introduce an instrument; and (3) if the first or second molar tooth be loose, and pus flow freely from the socket, &c., on its removal.

Case 1.—Miss M., aged twenty-five, consulted me last year for "a disagreeable smell and discharge from the right nostril." Both nostrils had been "closed up" for between four or five years, and in the first year there had been a copious watery discharge. A few months previously several polypi had been removed from both nostrils. Anterior rhinoscopy showed several small polypi on the middle turbinated bones and the mucous membrane, swollen and of greyish colour. When the patient held her head down there was a copious discharge of foul pus from the nostril. She had had much toothache on the left side. Two teeth had been extracted, but the pain still continued. I removed the polypi, and treated the swollen mucous membrane with the galvano-cautery. The foul discharge from the left nostril still continued, and there was a remarkably rapid recurrence of polypi on that side. On March 8th I opened the maxillary sinus. As the left nostril was very narrow, the septum being much bent, and as the first molar tooth was loose, I did not operate from the nose, but removed the loose tooth and pierced the alveolar process with Krause's bent trocar. A large quantity of foul pus escaped. A small drainage tube was inserted into the opening and attached to the second molar with wire. Through this tube the sinus was daily washed out with a warm solution of boric acid and sublimate. There was no more discharge from the nostril and no recurrence of the polypi. On March 18th there was no more discharge from the sinus, and in two weeks the alveolus had completely closed up.

Case 2.—Miss K. consulted me in November last for a "disagreeable smell from the right nostril." Several years ago she had had some polypi removed from both nostrils, and since then she had noticed the disagreeable smell. She had never had toothache. Anterior rhinoscopy showed on the right side swelling and poly-

poid degeneration of the middle turbinated bone. This was treated with the galvano-cautery. There was a rapid recurrence of small polypi, and I noticed that there was always a small accumulation of pus at the same place—i.e., just under the middle of the turbinated bone. Although there were no other symptoms of empyema, no swelling or pain over the cheek, no discharge from the nostril when the head was bent, &c, I nevertheless decided to open the sinus. On Dec. 4th, I pushed a thick galvano-cautery point into the place where the pus accumulated, thinking rightly that this must be the opening of the sinus. The point readily passed into the sinus. I enlarged the opening and syringed out the sinus. In a few days the "disagreeable smell" had disappeared, and there was no recurrence of the polypi.

The points to which I have endeavoured to draw attention, and which are illustrated by the history of these few detailed cases, are—1. That the chronic form of empyema of the maxillary sinus is much more common than is generally supposed. 2. That in many cases there are no typical symptoms whatever. 3. That empyema is very frequently the cause of chronic and recurrent rhinitis, especially unilateral. 4. That empyema can give rise to the typical symptoms of ozæna. 5. That it is in most cases caused by disease of the mucous membrane of the nose, and not by diseased teeth. 6. That in most cases the easiest and simplest method of treatment is to open the sinus from the interior of the nose, and not from the alveolar process.—*Lancet, Aug.* 25, 1888, *p.* 366.

65.—EMPYEMA OF THE SUPERIOR MAXILLARY ANTRUM WITH ONLY NASAL SYMPTOMS.

By Peter McBride, F.R.C.P.Ed., Surgeon to the Ear and Throat Department, Royal Infirmary, Edinburgh.

Among both surgeons and specialists there has been, and I may even say there still is, a tendency to regard suppuration of the lining membrane of the maxillary antrum as invariably attended with pain, swelling, and distension of the osseous walls of the cavity. The condition to which I propose now to direct attention is associated with none of these symptoms, and the patients usually come to the surgeon complaining only of a constant or periodic discharge of pus from the nose. Sometimes the secretion is offensive, and then both its smell and taste may be perceived by the sufferer; in other instances, however, it is free from fœtor. Inasmuch as one antrum only is commonly affected, the discharge is usually found to come from one nostril—although it must not be forgotten that as the two nostrils communicate posteriorly any large quantity of secretion finding its way into one may in part escape by the other, more especially while blowing the nose. I have laid some stress upon this point because the unilateral

character of the discharge is often only discovered after careful questioning.

Very often, too, the patient has never observed that the quantity of discharge is altered by changing the position of the head, although I believe that a careful rhinoscopic examination will commonly prove that this phenomenon is present. In most instances inquiry will elicit a history of faceache, sometimes extremely slight, or at least of a period of discomfort in the region of the cheek; but this is frequently only discovered by strict questioning, because to the patients there seems to be no connection between the two conditions.

For the most part there is neither pain nor discomfort when the case is examined, because the suppuration has become chronic, and the pus discharges freely through the natural orifice (or orifices) into the nose. Fraenkel, however, states that in not a few cases frontal headache is complained of, and I have seen the same symptom in one of my own cases. I was at one time inclined to regard this symptom as a reflex neuralgia, but am now more disposed to adopt the explanation suggested by Killian. It will be remembered that the normal opening of the antrum into the nose is close to that of the frontal sinus. We shall presently—when discussing the objective signs—see that the nostril corresponding to the affected side usually shows swelling of the mucous membrane. As a sequence of this tumefaction closure of the communication between the frontal sinus and the nose occurs, with the natural result that, as the contained air is absorbed, the frontal cavity is placed under abnormal physical conditions. It is even conceivable that in this way secondary inflammatory changes and exudation might result in the frontal sinus. The possibility of foreheadpain and tenderness being due to antral disease is a matter of great importance, as its presence might easily lead to the diagnosis of suppuration in the frontal or ethmoidal cells.

The most scientific contribution on this question is from the pen of B. Fraenkel. As he very properly points out, the pus in these cases can be seen to issue from the region of the hiatus semilunaris. If then the nose be thoroughly cleansed, and the secretion be seen soon afterwards to appear in the middle meatus, we may suspect antral mischief; but, as Fraenkel remarks, "Not all pus that is poured into the middle meatus through the hiatus comes from the antrum." For it may also proceed from the frontal sinus. In order to differentiate the two conditions, Fraenkel carefully cleanses the nostril and makes the patient sit with his head down, a position which would render drainage from the frontal sinus into the nose impossible. If after this more pus be found, he concludes that the maxillary sinus is at fault.

Let us now take a final glance at the clinical feature of the affection we are discussing. The patient complains of a unilateral

discharge of pus, which sometimes trickles from the nose in a continuous stream, and may be fœtid or sweet; in some persons the discharge seems to occur periodically. Careful examination of the affected nostril shows that the secretion comes from a point just below the anterior extremity of the middle turbinated body; sometimes, however, it is sufficiently copious to cover the posterior surface of the palate, posterior end of the inferior turbinated body, &c. If the nostrils be syringed out, and the drop of pus wiped away from the middle meatus, and the head thrown forward with the forehead down, the secretion is seen, on examination undertaken immediately afterwards, to be increased in quantity. Anterior rhinoscopy often shows the mucous covering of the inferior and middle turbinated bodies to be hypertrophied, or at all events in a state of erectile swelling. This last named condition can, of course, be temporarily overcome by the application of cocain or menthol—a proceeding which is often necessary to obtain a better view of the parts.

Posterior rhinoscopy is merely useful in excluding other conditions. The diagnosis of the form of empyema of the antrum under discussion is arrived at by a process of exclusion. The frontal sinus is eliminated by Fraenkel's method, and besides this cavity is rarely affected by itself. A careful rhinoscopic examination will exclude all other possible causes of unilateral nasal discharge, e.g., the presence of a foreign body or rhinolith, ulceration, inflammation of the bursa pharyngea, ozæna, caries, &c.

There is, however, one condition which deserves more than passing notice, and which was first pointed out to me by Dr. Cotterill, in a case where he operated at my suggestion, viz., a marked redness of the gum corresponding to the affected antrum. This was found in the last case but one which I have examined; in the last the same phenomenon was present. I am not aware that this condition has been so far observed by the few authors who have written on empyema of the antrum without the usually described symptoms. As to the cause of this form of antral affection, I think by far the most common is to be sought in the presence of decayed upper teeth, usually the bicuspids or first molar. I have met with one case, however, in which the antral inflammation was set up by either long continued nasal catarrh, or by douches used for its cure.

In conclusion, it remains to refer briefly to the treatment. I do not think that Stoerk's suggestion to treat these cases by the introduction of a tube into, or, if this be impossible, up to the natural opening between the antrum and the nose, and thus to irrigate the cavity, is at all advantageous. Manifestly this line of treatment, even if in the end successful, must entail so much time and trouble as to weary the average patient. No doubt the establishment of a counter-opening is more scientific and satisfactory.

Such a counter-opening may be made through the socket of a tooth, through the alveolar process, or finally through the outer wall of the nose near its floor, as suggested recently by Mikulicz. After a free drain has been established, irrigation of the antrum must be undertaken, and continued until the case is cured. For injection, such fluids as boracic lotion, or water containing small quantities of iodine or chloride of zinc, may be used, according to the indications afforded by each particular case. Whether the insufflation of powders in addition (boraic acid, iodoform, &c.) would prove more rapidly effectual I am not yet prepared to say.—*Edinburgh Medical Journal, April* 1888, *p.* 887.

66.—ON POST-NASAL GROWTHS AND THEIR RELATION TO DISEASES OF THE MIDDLE EAR.

By Adolf Bronner, M.D., Bradford Eye and Ear Hospital.

Meyer, of Copenhagen, was one of the first to draw attention to the frequent occurrence and great importance of post-nasal growths (Hospitals Tidende, Nov. 4 and 11, 1867, and Archiv für Ohrenheilkunde, 1873). Several authors divide post-nasal growths into two diseases, that is, adenoid vegetations and hypertrophy of the pharyngeal tonsil. There does not, however, seem to be any physiological difference between the two affections. They are simply two forms of one disease, that is, local hypertrophy of the normal pharyngeal tonsil or retinoid tissue, situated at the vault of the naso-pharynx. If the hypertrophy is regular and lobular, it is called hypertrophy of the pharyngeal tonsil; if irregular, adenoid vegetations or lymphoid papillomata. Of course, in many cases the surrounding retinoid tissue is also hypertrophied, but rarely to such an extent as to be of much importance. Many authors still seem to believe that the growths grow from the posterior wall and sides of the naso-pharynx. That this is not the case has been proved by the post-mortem examinations of Trautman, of Berlin.

The symptoms of post-nasal growths are very characteristic. The child (as children are mostly affected) is generally pale and weakly, with in-drawn thorax and pinched nose. It keeps its mouth open, more or less, which gives it a peculiar and stupid expression. The lips are swollen and thick; often also the eyelids. The child sleeps with its mouth open, and invariably snores at night. There is a peculiar nasal twang, very similar to the speech in paresis of the soft palate. The child cannot breathe through its nose, and is subject to attacks of bronchitis. In nearly every case there is distinct history of recurrent disease of the middle ear. The growths can be easily felt by introducing the finger behind the soft palate. They can in most cases be distinctly seen by anterior and posterior rhinoscopy.

The treatment of post-nasal growths can of course only be a

local one. I now invariably remove them with the ring-shaped curette, as recommended by Hartman, of Berlin. It removes the growth very readily, the operation is not very painful, there is no danger of wounding any important structures, and, what seems to me to be of very great importance, the operation can be performed without an anæsthetic. The curette is similar in shape to the curette of Lang or Dalby, but the upper edge of the ring is flat instead of round (see diagram). The head and arms of the patient are firmly held by an assistant; the tongue is depressed, and the bent end of the curette is passed behind the soft palate. The flat end (*a*) is then pressed well against the vault of the naso-pharynx, and firmly drawn from one side to the other, thus cutting, or rather slicing, off the growths. In many hospitals it still seems to be customary to use an anæsthetic when the growths are removed. By operating in the manner I have suggested, an anæsthetic is hardly ever necessary, and the removal of post-nasal growths is reduced to a minor operation which can be undertaken at any time or at any place, without the slightest risk and in a very short time.

Post-nasal growths are to be met with mostly in children, and are undoubtedly much more common than is generally supposed. Meyer examined 2,000 school-children at Copenhagen, and found that 20, or 1 per cent., showed distinct symptoms of the growths. He also examined 700 children of the Orphanage at Haverstock Hill, and found that 13, or nearly 2 per cent., had post-nasal growths. Professor Doyen saw 4,000 children at Leyden, and found 5 per cent. showed the symptoms of growths.

The great importance of post-nasal growths is their intimate relation to diseases of the throat and middle ear. Meyer examined 1,083 cases of deafness, and found 80 cases of post-nasal growths, or 7·5 per cent. Of 175 patients who had post-nasal growths, 130, or 70 per cent., were affected with diseases of the middle ear. Killian found that of the 712 cases who attended the ear clinic of Dr. Hartman in the half year 1886, there were 135 cases of post-nasal growths—nearly 20 per cent. Of these 135 cases, 101, or 75 per cent., had diseases of the middle ear. Of 242 children under 15 who had diseases of the middle ear, 90, or 40 per cent., had post-nasal growths. Schmiegelow reports that of 119 cases of post-nasal growths, 100, or 84 per cent., had diseases of the middle ear.

I have collected from private cases and cases under my care at the Bradford Eye and Ear Hospital 198 cases of diseases of the middle ear in children under 15, and found that of these 198 cases 101, or over 50 per cent., had post-nasal growths. These were removed in 90 cases, thus clearing up all doubt as to the diagnosis. Of 152 cases of post-nasal growths, 125, or about 85 per cent., showed symptoms of past or present affections of the middle ear.

These facts will, I think, suffice to show how very important it is that in all children who suffer from recurrent or chronic diseases of the middle ear the naso-pharynx be carefully examined, and the growths, if there be any, removed. In adults other diseases of the naso-pharynx and also diseases of the nose become more frequent, and are in their way just as important for the treatment of diseases of the middle ear as post-nasal growths are in children.—*Brit. Med. Journal, July* 14, 1888, *p.* 73.

67.—ON THE OPERATIVE TREATMENT OF NASAL POLYPI.

By P. McBride, M.D., Edinburgh Royal Infirmary.

My main object in this paper is to compare the various operative procedures now adopted, with a view to elucidating their respective advantages and disadvantages. These methods are evulsion by means of forceps and removal by snares, which may be cold, or heated by the electric cautery.

Forceps.—This method, has, I believe, no advantages to recommend it. If practised without illumination, it is, unless for exceptional cases, unscientific, and I would almost say unjustifiable. If, on the other hand, the forceps be guided by the eye, their use is still open to the objection that more pain is caused by opening the blades than by the introduction of a delicate wire snare. It is true that forceps sometimes prove serviceable in those cases in which the polypus, although seen by means of the nasal speculum, cannot be enclosed in the loop of the snare; but such cases are certainly uncommon.

Snares.—No doubt all specialists are now agreed that the snare is the best weapon wherewith to attack nasal polypi. Further, there is a general consensus of opinion that the loop should be composed of piano wire, which, owing to its resilience, can be much more conveniently used within the nasal cavities than any of the more flexible varieties. Here, however, the unanimity ends.

The advantages claimed for the electric snare, used at a red heat, are that it is—(1) not very painful; (2) unaccompanied by bleeding; (3) a caustic. All these advantages I am willing to admit, and I am quite of opinion that it is the best method of removing those polypi which are not distinctly pedunculated—in other words, fringes of polypoid tissue attached along the whole

length of the middle turbinated bone. This form of nasal polypus is, however, in my experience less common than the distinctly pyriform pedunculated variety. Even in the case of these, however, I should prefer to use the galvano-caustic snare rather than a cold wire loop did I look upon the latter simply as a means of abscission. No doubt if we can always make sure that our snare is adjusted to the very base of the tumour, then the theory of the wire heated by electricity becomes beautiful beyond conception, owing to the simultaneous removal of the growth and cauterization of the base. It is, however, almost with a pang that we turn from this beautiful ideal to the experience of practice. As a matter of fact, let us set our snare ever so wisely, the actual base or point of attachment is almost never reached in such a way as to enable the operator to cauterize the point of junction between healthy mucous membrane and polypoid tissue. If this contention be admitted, the statement that the electric snare acts at once as a means of removal, and at the same time cauterizes the pedicle, may be set aside as unsatisfactory, for obviously cauterization of the pedicle is useless, unless we are by its means enabled to destroy the point of junction of the growth with the healthy mucous membrane. This I maintain cannot often be done, although the attempt may under certain circumstances prove successful.

The argument as to the avoidance of hemorrhage has certainly more in its favour. There is no doubt that if the electric snare be used at a dull red heat bleeding is avoided, and thus less delay is caused to the operator; and if the latter be hurried or of an impatient frame of mind, he is enabled to proceed with greater comfort. Perhaps, too, we may admit that from this point of view the heated snare is advantageous in cases where it is essential to clear the nose at one sitting. Whether such a proceeding is best for the patient I feel justified in doubting; for even the advocates of the electric snare admit that repeated séances are desirable,—nay, even necessary, if recurrence or the rapid enlargement of previously existing minute excrescences is to be avoided. Speaking generally, then, we may consider the avoidance of hemorrhage a convenience, but nothing more.

Turning now to the asserted greater painlessness claimed for the heated wire as compared with other methods, I take the liberty of denying this directly. My own experience has been that patients suffer discomfort during the removal of polypi by the cold snare, not so much while the growth is being taken away as during the adjustment of the loop, and that the pain is directly proportionate to the endeavours of the surgeon to push the wire up to the point of attachment. After this, if the cold snare be used, the actual removal of the growth takes place so quickly that it is hardly felt. With the heated wire it must of necessity be different if the operation is to be bloodless—one of the chief merits claimed by its

advocates—and if, further, anything like thorough cauterization of the pedicle is aimed at. I have myself given the method of removing polypi by means of the galvano-caustic loop a fair trial, and have been convinced by the experience so gained that, although not extremely painful, it is much more so than the cold snare. This statement is based upon the opinions of a number of intelligent patients on whom both methods have been used by me.

So far I have stated my objections to the galvano-caustic loop for the removal of nasal polypi. In some cases, however, I have found it serviceable. Roughly speaking, its use seems to me indicated in cases where the sessile nature of the growth renders it impossible to practise the method I adopt in using the cold snare. I thus prefer it for the removal of polypoid fringes, because after the growth has been encircled and the wire slightly tightened, a firm hold may be taken of the tumour by turning on the current and so producing a furrow at its base. This, of course, effectually prevents the wire from slipping. However, in these and allied cases I cut off the part grasped in the ordinary way.

In the common form of pedunculated polypus, however, I am strongly in favour of the cold wire snare—used not for abscission but evulsion. I need not here enter into the question of the etiology of nasal polypi, a matter still involved in mystery. That gravitation has, however, a share in their production I believe few will deny. In most cases they are pear-shaped, and the point of attachment to the mucosa proper corresponds to the thinnest part of the pedicle, or nearly so. I believe, therefore, that if the polypus be grasped firmly and traction made upon it, this is the point at which it will yield.

No doubt the nostrils can be freed from polypi either by the cold or electric snare, and also by means of the forceps used by the aid of sight; but in this case the operation is associated with unnecessary pain, and no doubt the desideratum of the good surgeon is to accomplish his object with as little discomfort to the patient as possible.

When all that can be done by these methods has been accomplished, however, the treatment is but half accomplished. If we desire to avoid recurrence we must resort to some after-treatment, Sometimes the spray of rectified spirit, as suggested by Mr. Miller, is a most efficient remedy. My only objection to it is that sometimes it causes irritation, and I am not quite certain that its continued use might not injure the sense of smell. I confess, however, that I formerly used it a great deal, and that notwithstanding this fact my fear is based purely upon theory and analogy. I now generally, as do all specialists, destroy all the blue polypoid tissue which is left, after so much as possible has been removed, by one of the above-mentioned methods, either with the galvano-caustic burner or with chromic acid fused on a rough-

ened probe. Here again I believe it is immaterial which method is used. When chromic acid is employed a solution of bicarbonate of sodium should always be at hand for purposes of neutralization if pain be excessive. It goes without saying that in all operative procedures cocaine should be employed. In some cases a combination of cocaine and menthol seems to act more efficiently than either drug separately.— *Edinburgh Med. Journal, Aug.* 1888, *p.*112.

68.—ON THE OPERATIVE TREATMENT OF NASAL POLYPI.

By George Hunter, M.D., F.R.C.S.Ed., Linlithgow.

Regarding the treatment of nasal polyi difference of opinion now exists. Evulsion by forceps, removal by cold snare, and the use of the galvano-cautery, have each their enthusiastic supporters. Sir Morell Mackenzie writes that "the great advantage of evulsion is not only the *facility* with which the treatment can be carried out, but the *rapidity* with which relief can be obtained. More growths can be removed at a single sitting than can be got rid of either with the snare or by electric cautery." On the same page, however, he states, "I feel convinced that no practitioner would ever allow evulsion to be performed on himself."

The cold snare is that recommended by Moldenhauer, Schech, Woakes, Greville Macdonald, and I believe by Dr. M'Bride; and probably is the method most generally used. Galvano-cautery has been strongly advocated by Voltolini, Michel, Thudicum, and Wolston, principally on the ground that where the polypi are somewhat tough, or have a broad base, the wire of the cold snare breaks, for one has to pull pretty hard, and a very copious hemorrhage follows.

I have operated by all these methods, and regarding the first, I can only say that I should never allow forceps, no matter how skilful the hands employing them, inside my nares; and what I do not tolerate in my own case, I could certainly not have recourse to for my patients. Believing, however, that polypi are only the *symptoms* of a morbid subjacent condition, and not the disease itself, it matters the less whether they are removed by cold or galvano-caustic snare, provided the deeper seated cause is energetically treated. But as the cold snare is of much simpler construction, less expensive, and in many cases very effective when followed by the application of chromic acid, as recommended by Hering, it is probably that form of treatment which will commend itself to the majority of general practitioners of the present day.

While this may be so, from the short experience I have had of the galvano-caustic snare, I am of opinion that it is the more satisfactory, and, when the pathology is kept in mind, the more scientific mode of treatment. It is not my intention to detain the Society with any theories regarding the etiology of nasal polypi,

but I am inclined to subscribe to the views of Greville Macdonald, that in a large proportion of cases changes of an inflammatory character take place in the muco-periosteum, and even in the middle spongy bone itself, the polypi being the ultimate development of the hyperplastic and metaplastic conditions. From the statement that necrosing *ethmoiditis* exists in every case, as asserted by Woakes, most observers will, I believe dissent, for single polypi may be met with surrounded by apparently healthy mucous membrane. That the dependent position of the turbinated mucous membrane, the presence of abundant moisture, and a feeble circulation, are also not unimportant factors, could, I believe, be substantiated did time permit. Most surgeons are agreed as to the value of the cautery in the treatment of caries in such positions as the knee, wrist, spine, &c.; and one is justified in the inference that a similar mode of treatment would prove not less efficacious in the osseous hyperplasia which has been shown to occur in the middle turbinated bone by the authors referred to. The application of the galvano-cautery checks the hyperplasia which is liable to lead up to polypus, and by destroying the base after it has formed, causes the development of a higher form of embryonic tissue—the fibrous or cicatricial—from which myxomatous growths are less likely to originate, and recurrence less liable to take place. In making these applications the services of the specialist should generally be requested, as there is risk of synechiæ resulting between the septum and middle turbinated, if the cautery be unskilfully employed. One of my cases, that of Mrs. M., is interesting as having been operated upon by all three methods,—five times by forceps, thrice by cold snare, and once by galvano-cautery—a dozen or more of polypi being removed on each occasion. This tells its own tale as to the inefficiency of the first two methods, and her own impression is that they have never been so thoroughly removed as by the battery. The senses of smell and taste have to a certain extent returned since the last operation.—*Edinburgh Med. Journal, May* 1888, *p.* 1006.

ALIMENTARY CANAL.

69.—ON THE ELEMENTS OF SUCCESS IN THE OPERATION FOR CLEFT PALATE.

By Howard Marsh, F.R.C.S., Assistant Surg. St. Bartholomew's Hospital, Sen. Surg. to the Hospital for Sick Children, London.

It is generally agreed that the plan of operating for cleft palate which Mr. Thomas Smith has introduced, and which includes the administration of chloroform and the use of the special gag which he has invented, is, in the hands of those who are

familiar with it, one of the most satisfactory of all palate operations. Cases, however, sometimes present themselves which show that there are certain particulars which still require to be advocated. Patients are not rarely admitted into the hospital in whom a previous operation has failed, apparently from the omission of some essential point, while in other instances the opinion has been expressed that the condition of the palate was so unfavourable that no operative treatment ought to be undertaken, and yet these cases presented no feature of unusual difficulty, and were subsequently cured by a single operation. I think, with these examples in view, it may be useful to state the circumstances upon which success mainly depends.

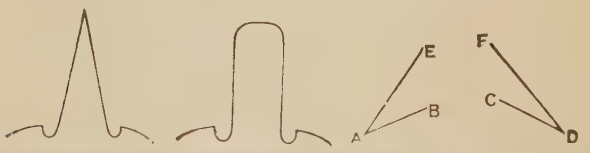
1. In the first place the age of the patient is very important. The mistake sometimes made is that of operating too early. No doubt it is possible to cure the slighter forms of cleft of the soft palate in children who are only a few months old. But even in the most favourable cases failure will be more frequent than success. Even when the cleft is limited to the soft palate the operation had better be postponed till the child is between two and three, or older still, unless he is well grown and strong. In cases in which the hard palate is involved operative treatment should be deferred till the child is at least three and a half. In the average run of cases it is better not to operate till the patient is between four and five. No doubt the sooner the operation can be performed with success the better, especially because the improvement in articulation will then be most marked. The fact is, however, that when done earlier than the time I have mentioned there is a great chance that the operation will fail, and then future cure will be rendered much more difficult. Besides, the operation is so considerable that in very young children it is by no means free from danger to life. In instances in which the local conditions are very unfavourable (these are mentioned below) the operation should be delayed even beyond the fifth year, for, as growth proceeds, the fissure will tend to become narrower and the soft parts more fleshy and firm. Several cases have come under notice in which, though when the children were three years old the possibility of closing the fissure seemed very doubtful, all the conditions had become favourable when the patients had reached the age of six. Indeed, were the mere closure of the palate the only question, there is no doubt that the best age for operating—I mean the age at which the risk of failure would be least—would be between nine and twelve. Of course, there are many reasons for operating earlier; but the fact remains that in difficult cases the chance of success steadily increases as childhood advances.

2. Care must be taken to see that the patient is in good general health before the operation is performed. The temperature should

be taken morning and evening for two or three days before it is proposed to operate, and if it is not absolutely normal the operation should be postponed. Care must also be used to ascertain that the child has not been exposed to any of the exanthemata, especially scarlet fever. Should the patient have a cough, no matter how slight, or diarrhœa, the operation ought to be postponed.

3. After the age and health of the patient come the width and the shape of the fissure and the conformation of the bones at the roof of the mouth. The mere antero-posterior extent of the cleft is immaterial. It is quite as easy to close a fissure that involves the whole length of the hard palate as it is to close one of similar width that involves only the posterior part. Indeed, it is sometimes easier, because the closure of the anterior part removes tension from the sutures posteriorly, where union is most likely to fail. The really important points are the width of the fissure, the shape of its anterior end, and the height or pitch of the arch of the hard palate. As to the width of the cleft, it is obvious that, other things being equal, the wider the cleft, the more difficult it will be to close it. As to the anterior end of the cleft, when this is pointed like a thin wedge (Fig. 1) the shape is favourable; but when the anterior end is rounded like the bow of a hairpin (Fig. 2), even though the cleft further back is not very wide, the difficulty of closure will be considerably increased. As to the height

Fig. 1. Fig. 2. Fig. 3.



of the palate and the shape of the arch, the higher the arch and the more it approaches the perpendicular—the width of the cleft remaining the same—the easier will the closure be; while the lower the arch the more difficult does closure become. This is shown in Fig. 3. Supposing that in each of the two cases the cleft is half an inch wide, and that in one the arch takes the direction of ABCD, and in the other the direction of AEFD; when the soft parts are brought down, the flaps AB and CD will be too short to bridge over the gap; but when the much longer flaps AE and FD are brought down, they will meet easily, and even overlap.

Supposing that the operation is performed in accordance with Mr. Smith's published directions, there are several points that have a considerable effect on the result. The first is that when the edges of the cleft have been pared, the soft parts on either

side should be freely separated, not only from their general connections with the bones which they cover, but especially from their line of attachment to the posterior border of the horizontal plate of the palate bone—that is, along the transverse line of junction of the soft with the hard palate. As this line of attachment is very firm, separation must be effected by the free, though careful, use of blunt-pointed curved scissors, employed first to divide the structures along this line, and then, their blades being closed, as an elevator to complete the separation further forward, if this has not been already done. When this proceeding has been thoroughly carried out, the palate will hang in a flaccid state in its whole length, and in favourable cases its edges will admit of easy approximation. Another point is that when the cleft is extensive the soft parts should be detached from the bones, not only along the borders of the cleft, but outwards and forwards nearly to the teeth. Unless this is done, the rapid reunion that takes place between the soft parts and the bones will tend to restore the former to their original position, and will then produce mischievous traction on the line of sutures. This wide detachment of the soft parts—varying, however, of course, with the extent of the cleft—will do no harm, for as blood reaches them chiefly from the sides (the branches of the posterior palatine artery running not far from the alveolar border) their mere separation does not materially injure their vascular supply. Another point is the relief of tension on the line of sutures by making lateral incisions. Those who operate only occasionally are a little uncertain as to the length to which the cuts should extend and the exact way in which they should be made, so that they are apt to cut either so freely as to endanger the vitality of the palate, or so sparingly that tension is not sufficiently relieved. The rule is that the incisions should run from before backwards and a little outwards, midway between the sutures and the alveolar border of the palate. The whole thickness of the palate should generally be divided only in the anterior half of the incision. In the posterior half it will be enough to divide merely the mucous membrane without cutting deeply into the other layers. By this course the large branches given off from the posterior palatine artery are preserved to supply the tissues, and the possible danger of injuring the posterior palatine artery itself is avoided. The relief of tension obtained by this proceeding is shown by the extent to which the edges of the divided mucous membrane immediately retract. The precise length of the lateral incisions will vary in different cases; the guide must be the amount of tension that has to be relieved. This can best be ascertained by examining the palate, after the edges of the cleft have been brought together, with the tip of the finger; and the operator must prolong the incisions until he finds that the parts have become distinctly flaccid, and that they no longer give the sensation of a tense dome,

and that none of the sutures have the appearance of dragging. When the soft parts are scanty, and it is found that as the sutures are passed there is considerable tension, or even that the edges cannot be brought together, it will be best to make the lateral cuts at once, and then, except in cases in which the operation had better not have been attempted, the parts will come together. As to the sutures, these should be of silver for the hard palate, and of horsehair, mainly or exclusively, for the soft; and the first to be passed should be a fairly deep silver suture, obtaining a secure hold, at about the junction of the hard with the soft palate. Then the soft palate should be closed to the tip of the uvula; and, lastly, the hard from behind forwards. If the sutures in the hard palate are producing marked tension, they should be only loosely twisted for the moment, and should be tightened with torsion forceps only after the side cuts have been made.

For four or five days after the operation the child should be fed exclusively upon milk and beef-tea, with a little brandy added to the milk if this seems necessary. From the sixth day to the fourteenth he may have, in addition, fine bread crumbs well softened in gravy; bread sauce, made by scalding finely-grated bread crumbs in milk; potato finely minced in gravy or beef-tea; corn-flour, or ground rice puddings made with milk and eggs, or soft custard pudding. Only when the palate has healed, and the sutures have been removed, should solid food be allowed. As harm may be done by asking the child to open his mouth to show how the palate is getting on, it is best to follow the plan of requesting that no one should look at the palate for the first week. Looking can obviously do no good; for even if union is failing to take place nothing can be done. The best chance always is to keep the palate at complete rest. Should the child flag, or look pale, or not take his food, he should, even on the second or third day, if the weather is warm, be sent out for a drive—if this can be done—twice a day; or he should be allowed to be up and walking about, for this will do no harm if he is carefully watched. Several times I have followed this plan with advantage. When children are evidently doing well, they may be kept in bed, where they are most easily managed, for a week, and then allowed to be up. As a rule, no local application should be made to the palate. Certainly there should be no syringing. Sometimes, however, chlorate of potash may be usefully added to the milk, in which it is nearly tasteless, or the mouth may be rinsed with a 2 per cent. solution of boroglycerine. The sutures are sometimes, I believe, removed much too soon. As a rule, they should not be taken out till the tenth day. It will do no harm to leave them in for a fortnight. It is remarkable how much closure may occur by granulation in cases in which primary union has partially failed. In several cases, though at the end of a week only a narrow

bridge remained between the two edges of the cleft, complete union has subsequently occurred by the gradual extension of granulations.

But little assistance, in regard to prognosis, in particular instances, can be derived from statistics in such an operation as staphylorraphy. Each case must be judged upon its own merits. It may, however, be said that in instances in which the patient has reached an appropriate age, and is in good health, in which the soft parts are fairly abundant, and in which the details alluded to above receive attention, failure will be so rare that operative interference may be confidently recommended. I have made no reference to other forms of operation that have been recommended by different writers, for, so far as I have been able to judge, the proceeding devised by Mr. Smith is by far the best with which I am acquainted.—*Lancet, July 7*, 1888, *p.* 7.

70.—ON THE WHITEHEAD METHOD FOR REMOVAL OF THE TONGUE.

By W. H. A. Jacobson, M.A., F.R.C.S., Assistant Surgeon to Guy's Hospital, London.

[After pointing out the great advantages which Whitehead's operation possesses over other methods, in that it enables the surgeon to make the section of the tongue deliberately well behind the growth, at the same time that the wound is very clean, and so the dangers of septic infection of the lungs is reduced to a minimum, Mr. Jacobson says:]

The instruments required are extremely simple and few. It is most essential that the anæsthetic should be in the hands of a man who can be thoroughly trusted. It is often taken badly in these cases, with much dyspnœa and restlessness at first and during the operation; owing to the open mouth admitting much air and the fear of interfering with the operation, the patient often "comes to." The only thing is to get the patient well under at first; later on it will be well not to keep him too much under the influence of the anæsthetic, in order that, the sensibility of the larynx being retained, the blood may not enter the air-passages. The administrator must watch the tint of the lips, the condition of the veins in the cheeks, and should know when a little blood is only safely, though noisily, bubbling at the back of the fauces and when it is getting into the trachea. I look upon the administrator of anæsthetics, in these cases, as quite as important as the operator. Two reliable assistants who understand the steps of the operation are needed, one to take the gag in charge and to sponge when needed, and the other to hook back the corner of the mouth with two fingers while he is ready to sponge, and thus, with the position of the head over to this side, with the aid of deft sponging, enable the blood to escape freely

from the wound in the cheek and out of the mouth. Two nurses should be ready to supply sponges; these being absolutely clean, soft, and thoroughly wrung out of iced Condy's fluid and firmly secured on holders. The following instruments should be close to the operator's right hand: scissors, a pair of torsion forceps and Spencer Wells's forceps, a needle in handle, threaded with stout silk, and one or two medium-sized ligatures of carbolized silk.

A good light is absolutely essential; daylight, with the operator close to a window, being the best. If it is needful to operate when this cannot be obtained, as in a succession of foggy November afternoons, a good lamp light concentrated by a laryngeal mirror will be useful. In making arrangements for a good light, the surgeon will remember that, while the removal itself takes but a short time, getting the patient under the anæsthetic and keeping him under its influence often render the operation much prolonged. It may not be superfluous to add here that this is an operation which calls for coolness and decision on the part of the operator and for promptness with their help on the part of all those who assist. No crowding on the operator, no obstruction to the light by bystanders should be permitted for a moment.

Preliminary Laryngotomy.—The question of the advisability of this operation now arises. It forms no part of a "Whitehead" proper. The operator who introduced the scissors-method, and whose success with it is so well known, never, I believe, uses a preliminary laryngotomy. In my first six cases I followed him closely. In the later sixteen I performed laryngotomy on several occasions, though I fear Mr. Whitehead will consider this admission on my part as a sign of "falling away." With a wider experience, I am led to think very lightly of this preliminary step, and of the plugging at the back of the mouth, which it renders safe; and I do so for this reason: with the fauces plugged and the patient breathing through a laryngotomy canula, the surgeon can neglect the hemorrhage more, can operate more deliberately and thus (and this is the value of this preliminary step in my mind), at every step of the operation, can have the parts more thoroughly sponged dry and thus be enabled throughout to keep more surely wide of the disease. In other words, I do not dread the hemorrhage which accompanies a scissors-operation for itself, but because it is liable, in spite of careful, prompt sponging, to obscure the field and thus lead to cutting dangerously near the growth, a danger specially likely to happen if the hemorrhage is at all free, if the parts cut are very much softened and if the patient is not taking the anæsthetic well.

For these reasons I am inclined to recommend a preliminary laryngotomy, with plugging of the fauces in these cases: 1. When a surgeon who values Whitehead's operation is doubtful as to his means of meeting hemorrhage. 2. When the growth extends beyond the middle of the tongue into the posterior third. 3. When

the floor of the mouth is at all involved. In growths limited to the anterior half of the tongue, unless there is much fixity, laryngotomy is not needed, for as will be subsequently seen, sufficient of the tongue in such cases, after very little use of the scissors, comes right out of the mouth.

If it is decided to perform laryngotomy, this operation is done and a soft clean sponge, dusted with iodoform, is tied with silk into appropriate size and fixed at the back of the fauces, the silk being brought out of the mouth and held by a finger of the assistant who has charge of the gag. This sponge must be pressed well back and care taken that it does not draw back and down the base of the tongue, or it may cause some difficulty in securing the linguals when the transverse section of the tongue is made far back. The anæsthetic is now given through the tube, an additional advantage brought about by the laryngotomy, as the administration of the anæsthetic does not interfere with the field of operation. So very little sloughing and swelling of parts follow on Whitehead's operation that the laryngotomy tube may be removed as soon as the patient is back in bed and has "come to" comfortably.

Whether laryngotomy is performed or not, the patient, being propped up, is brought quite to that side of the table on which the surgeon stands. A gag is placed on the side of the mouth opposite to the growth and the mouth widely opened. The tongue is then transfixed on the diseased side, well back in its anterior third, with a needle in a handle loaded with stout silk; this is looped and knotted and the tongue thus well drawn out of the mouth. The surgeon then, with a sharp pointed bistoury, splits the tongue longitudinally along the raphe to a point thoroughly well behind the growth. This is another departure from a strictly performed "Whitehead," but it has the following advantages, while it causes no troublesome hemorrhage if the blade be kept in the middle line: 1. If the whole tongue is to be removed, it places *the* hemorrhage much more under the control of the surgeon, as *he* can deal with each half separately and with one lingual securely at a time. 2. It enables the surgeon to leave half the tongue if he finds it safe to do so. It has been said that leaving half the tongue is useless, the part left being but little under the patient's control. I am of an opinion entirely different. In cases in which I have been able, after splitting the tongue, to leave half of it, the part was most useful both in speaking and swallowing, &c., and I am, further, most strongly of opinion that if patients could be assured that only half of the tongue would be removed, they would submit much more readily to an operation they dread so peculiarly and to the grievous putting off of which is due the very small percentage of permanent cures.

The tongue having been split and the diseased half drawn well out of the mouth, the surgeon next divides with scissors the mucous

membrane between the tongue and the alveolar process, keeping close to the bone, so as to be wide of the disease. The anterior pillar of the fauces is next divided. While the above steps are taken, the two assistants sedulously sponge away any hemorrhage into the hollow of the cheek and out of the mouth, the cheek being retracted as already directed. Careful sponging and sponge pressure on bleeding points are most essential if the surgeon is to cut wide of the disease.

If the disease has implicated the frænum and its vicinity, two or three of the lower incisions should be made, so that the scissors may be introduced on a level with the disease. If this is not done, the scissors have to be dipped in over the teeth in an awkward way and one which, as soon as the bleeding occurs, makes it impossible to be sure of getting below the disease. The scissors can be introduced with much greater facility and used to much better purpose, if a gap is made in the teeth; these can be kept and fitted to a plate later on by a dentist. When half of the tongue has been freed all round, the muscles between it and the floor of the mouth are cut through with a series of short snips, until the diseased half is separated on the level of the lower part of the jaw, as far back as is needful. During this stage, oozing will take place and one or two small arteries will jet with varying freedom in different cases, but these will yield to pulling steadily on the tongue and to firmly applied sponge pressure.

The tongue having been freed horizontally up to a point well behind the disease, the transverse section is now made, and here I have found the following precautions useful. Instead of cutting traight across the half and trusting to being able to rescue the lingual on the face of the stump, a step by no means always easy of accomplishment, owing to the artery being often at once obscured by a small pool of blood and to the not infrequent softness of the tissues in these cases, I cut a deep groove through the tough mucous membrane of the tongue and tear through the softer muscular tissue with the closed scissors or a steel director, until the lingual nerve and artery are seen; then, having applied a long-bladed pair of torsion forceps to the remaining tissues, cut away the half of the tongue in front of the forceps, and then twist or tie the lingual artery which has thus been secured.

If it be needful, the surgeon then proceeds to deal with the other half of the tongue, a step which is much facilitated by the rooms given for manipulation by the removal of the first part.

Slitting the Cheek.—This step is an excellent one. It may be made use of in cases in which the disease is situated very far back, extending close to or on the anterior pillar of the fauces, in which the hemorrhage is expected to be especially free, in which the light is unavoidably very bad or in which there is unusual difficulty in getting the jaws well apart. The cheek is slit as far back as

the anterior border of the masseter, the facial artery and other small branches being secured at once. The parts require most careful adjusting afterward, especially at the corner of the mouth, where, from the dribbling of saliva, primary and exact union is not always secured.—*American Journal of Med. Science, Sept., p.* 236.

71.—A CASE OF INTUSSUSCEPTION TREATED SUCCESSFULLY BY ABDOMINAL SECTION.

By Arthur E. J. Barker, F.R.C.S., Surgeon to University College Hospital, London.

In view of the comparative rarity of successful operations for intussusception I desire to place the following upon record. It appears to furnish additional evidence, if any is wanted, that abdominal section may be safely undertaken for this condition in its earlier stages even in young children, and ought, therefore, to be resorted to at once if other simpler methods of reduction fail.

Charles S., aged four years, was admitted into University College Hospital on Aug. 25th, 1887. He had always been a healthy child, and had had no illnesses except measles and whooping cough; he had been run over by a cab four months before, the wheel passing across his chest. His health had been excellent up to the day before admission; his bowels had been opened at 10 a.m., and he had gone to school and returned quite well. Nothing was noted up to bed-time, but at about 3 o'clock in the morning the child awoke, complaining of pain in the abdomen. He then passed a stool, which was fairly loose, but with no relief of the pain. A little later he tried to defecate, and brought away about a wineglassful of blood, and half an hour later some more. From this time on until 2 p.m., when I first saw him, he continued to lose blood from the rectum at short intervals. On admission he lay with his legs drawn up and resisted examination. An ill-defined tumour could be felt in the left iliac fossa. The finger introduced into the rectum reached nothing abnormal at first, but was covered with blood and mucus on being withdrawn. When I examined the child his state was as above, but I thought at one moment that I could reach a tumour in the bowel by the rectum. But even uncertainty on this point in no way influenced the diagnosis of intussusception of the large intestine, which appeared quite clear from the history, symptoms, and the presence of a hard tumour in the left iliac region. I therefore proceeded to distend the rectum and colon with water to as large an extent as appeared safe, and this seemed to have the effect of getting rid of the tumour as far as manual examination went. On my return, however, to see the patient at 7 p.m., I found that he had continued in great pain, and to pass blood from the rectum, and that the tumour was as clearly present as before. I therefore decided at once to operate. All antiseptic

precautions having been taken and chloroform having been given, I made an incision in the middle line from the umbilicus downwards for about 2½ in. The carbolic spray was only turned on a moment before the peritoneum was opened. On passing in my hand, I found the intussusception without difficulty in the left hypochondrium, but could not at first draw it into view. The incision was therefore prolonged about an inch upwards to the left of the umbilicus, and I was then able to manipulate the mass within the abdomen, though with some difficulty. By drawing upon the intussuscipiens from below with the finger and thumb of one hand, and squeezing it upon the intussusceptum with the other finger and thumb, I was able to force the latter upwards and to the right, and gradually to unravel it (still within the abdomen). This was somewhat assisted by drawing upon the portion of bowel which ran into the intussusceptum from above, but was almost entirely accomplished by squeezing the latter from below and at the same time gathering in the slack in my fingers. There was a little difficulty in reducing the last portion; but this was soon overcome by steady pushing and drawing. The bowel was much congested and marked by submucous hemorrhages, but was not very œdematous. When satisfied that the intussusception was perfectly reduced, some coils of protruded intestine were washed and the abdominal cavity mopped out with warm carbolised sponges, and closed in the usual way with seven or eight stout silk sutures. A dressing of salicylic wool was then applied after the wound had been dusted with iodoform, and the abdomen was firmly bandaged. The whole operation and dressing was finished within thirty-five minutes, and the patient bore it very well.

Immediately after the operation the child was given four minims of the tincture of opium, followed by two minims every two hours until the morning of the 27th. On the day following the operation (26th) the child was sick four or five times, probably from the effect of the chloroform, but not afterwards. He was restricted to a milk diet, given in very small quantity. During the night of the 26th the bandage round the abdomen, which was very tight, was loosened a little, giving considerable relief, and on the 27th I examined the wound and found it all that could be desired. The opium was then stopped and a little brandy was given with the milk. On the 28th he was given a little chicken broth, and the bowels were moved naturally for the first time. As soon as the heaviness of the opium passed off he seemed very well. The wound was again examined and redressed on the 30th, and looked perfectly satisfactory, and on the 31st he had a second stool naturally. He was then allowed to have some light solids. On Sept. 2nd, the wound was dressed again and for the last time, the stitches being removed; a broad strapping of American plaster was put completely round the body to support the scar. After this there is nothing

to note except that the child seemed quite well. During the first three days after the operation the temperature touched 101·2° on two occasions, but was usually below 100°, and after the third day was always so until the patient was discharged on Sept. 16th quite well.

The operation was relatively a short one and was not very difficult. This was due to the fact that the method of unravelling the bowel by traction and squeezing from below, rather than by traction on the included bowel from above, was resorted to at once.

Having been more than once deceived by the disappearance of the tumour under inflation or injection into the belief that I had reduced an intussusception, I was quite prepared for a return of both tumour and symptoms in this case, and found little difficulty in making up my mind to adopt the only other means of saving the patient's life—namely, abdominal section. The age of the patient added, perhaps, to the gravity of the procedure; but there was the hope that by operating early, while the child's strength was unimpaired and before serious structural changes had taken place in the bowel, the result would be quite different from that usually seen where abdominal section is undertaken. In this case the degree of strangulation or incarceration must have been very considerable, for blood was constantly being passed from the rectum, and when exposed by operation the bowel was seen to be deeply marked by ecchymoses. Nevertheless, the reduction of the intussusception offered no insuperable obstacles, the pressure of the mass between the fingers combined with traction on the intussuscipiens from below, probably unloading the vessels of the congested part, and so enabling it to slip up within a short time.

The few cases on record in which, like the present, an intussusception has been cured by abdominal section appear to me to open up a very large question. This has already been discussed by Mr. Hutchinson in his well-known classical paper published in the Transactions of the Medical and Chirurgical Society thirteen years ago, and by Mr. Marsh a little later, also by Mr. Howse conjointly with the late Dr. Hilton Fagge in a paper worthy of its authors. But it is a remarkable fact that in spite of the strong arguments in favour of this method of treatment of a very hopeless condition furnished by these gentlemen, and the three successful cases recorded by them together with one by Mr. Godlee, we have heard little or nothing of it within the last twelve years. As a matter of fact, there has not been, so far as I know, a single case of successful laparotomy for intussusception recorded in London during all these years, except Mr. Godlee's, until the present case. Now, what is the reason for this? Either intussusception is not such a common disease as formerly, and there has been no occasion at all to resort to severe methods of treating it; or some other method, safer and easier than laparotomy, has come into general

use in the meanwhile; or, finally, laparotomy has proved itself a particularly dangerous procedure, especially in the case of young children.

Now I do not think it will be asserted that intussusception is less common now than formerly. An appeal to our hospital records would show that just as many cases are admitted yearly as of old. And, as to the second proposition, I do not think that it has been shown that such great improvements in the methods of reduction of intussusception by inflation and injection have been introduced to the notice of the profession as to win its confidence and come into general use. I am aware that in Mr. Lund's apparatus for distending the lower bowel we possess, perhaps, the most perfect appliance yet designed for the purpose; but I have yet to learn that it has effected a revolution in the treatment of intussusception or removed the objections to the method of injection—viz., the danger of bursting the bowel, an accident which has frequently occurred. And as to the third question, whether laparotomy should be regarded as a hazardous procedure, especially in the young, experience is showing us every day that it has no special risks in the hands of careful surgeons, and that each day it is being simplified and improved. As to its propriety in the case of young children, in all of the successful cases above cited the age was below five years and the operation was well borne in three, although performed under difficult circumstances in two cases.

I venture then once more to urge what has been so ably and elaborately pleaded in the papers to which I have alluded—namely, that laparotomy offers a far more satisfactory and a safer means of treating intussusception than the methods hitherto in use, and has been shown by experience so far to have a strong claim upon the consideration of physicians and surgeons. Of course, no one would think of resorting to abdominal section until the milder means of inflation and injection had been given a fair trial. But just as in the case of herniæ, we are prepared without hesitation and at once to resort to herniotomy on the failure of properly applied taxis, so, I venture to urge, we should be prepared at once, and without hesitation, to open the abdomen in those cases of intussusception which are not speedily reduced by injection or inflation. It may be objected that there are cases in which, when the abdomen has been opened, the condition will be found irreducible. This will only be true if the operation be undertaken late, and in such cases it is certain that injection could not effect reduction, and would most probably burst the bowel if persisted in. It has been demonstrated by Dr. Fagge and Mr. Howse that two very different conditions are met with in intussusception, one which has been called "incarceration," and the other "strangulation." In the first, which almost certainly runs into the second if neglected, reduction may be effected in every case by laparotomy, if the method

of working from below upwards be adopted. But if the bowel by neglect has been allowed to run into the second stage—i.e., of strangulation, it is questionable whether any operative treatment, whether per anum or per abdomen, should be employed, at all events in children, whose powers by this time will be too exhausted for laparotomy, while inflation could do no good, and would probably lead to perforation.

I venture to think that this whole question of the treatment of intussusception is well worthy of the attention of the profession, and in bringing forward this case I have hoped pointedly to draw attention to it. I have hoped also once more to direct attention to those very valuable papers on the subject to which allusion has been made, and in which many of the points here only briefly referred to are handled in detail and in a masterly manner. The case now recorded serves but to emphasise the conclusions therein arrived at, and especially one which Mr. Hutchinson specially lays stress upon. He says: "It is my impression....that in future operations the lower end of the invaginated tract ought always to be first sought, and that reduction ought to be accomplished by squeezing it or pulling the sheath downwards, rather than by attempting to pull the contained tube out. I am not at all sure that in some cases this might not be accomplished without bringing the parts into view. Should this not be found practicable, however, it is probable that the operator will find it much more easy in cases of intussusception into the descending colon to bring the lower part into the wound than the upper one. It is the more necessary to draw attention to these points because they are both probably unlikely to occur of themselves to the operator's mind." In my own case the invaginated portion of gut could not be drawn out of the wound, and was entirely reduced within the abdomen by the method advocated by Mr. Hutchinson and just quoted.—*Lancet, May* 4, 1888, *p.* 200.

72.—ON THE TREATMENT OF FÆCAL FISTULA.

By W. Mitchell Banks, F.R.C.S., Surg. to the Royal Infirmary, and Professor of Anatomy, University College, Liverpool.

[A woman, 40 years of age, had for four days suffered from vomiting, which ultimately became fæcal in character, pain in the abdomen, and absolute constipation, when a small femoral hernia was discovered and reduced by taxis by her then medical attendant. After this the vomiting ceased, and the patient passed flatus downwards, but she had no evacuation of the bowels for three weeks. Meantime she observed her groin was swelling, and ultimately several sinuses formed, from which intestinal contents were constantly discharged. During all the time that elapsed from the formation of the first opening to the time of her admission, a period of nearly

three years, she passed solid motions by the rectum, but fæcal fluid and flatus also came through the sinuses. After thoroughly cleansing the sinuses by scraping and the application of turpentine, Mr. Banks proceeded to detach the intestine from the abdominal wall, and to close the aperture in the tube without resection, by tucking in the edge of the hole, and then stitching the peritoneum from side to side across it with catgut. In view of the possibility of the hole in the bowel breaking open, the last inch of the abdominal wall was unsutured, and the bowel fixed by a stitch in such a way that the closed orifice lay just opposite the lower part of the abdominal wound. The operation occupied an hour and a half. At the end of seven weeks the patient went home quite sound, and with the bowels acting naturally.]

In the treatment of fæcal fistula or false anus, one must be guided largely by the manner in which the fistula has arisen. In one set of cases an inflammation in or around the gut (or in both situations) is set up; the gut adheres to the abdominal wall, an abscess results, into which the bowel opens and an outward evacuation takes place, the peritoneal cavity being shut off by adhesions. Or the bowel may open at a point where it has no peritoneal covering, as in the case of the ascending or descending colon. In this class of cases the bowel never leaves the abdominal cavity, but simply adheres to the abdominal wall, without any acute bend in its course. A variety of this form occurs as the result of herniæ, where strangulation has been so sharp that, although at the time of operation the bowel does not seem dead, it speedily dies after reduction. The same thing (as in the case of my patient) may occur when a gangrenous piece of bowel has been reduced by taxis without any operation. But in the second great class of cases, the bowel in a hernia becomes gangrenous, an operation is done, and the dead bowel is not returned, but simply slit up or cut away. Here, at the hernial aperture, an acute bend permanently remains, the adjacent surfaces of the bowel just within the aperture become glued to each other, and a spur results, which acts as a barrier to the intestinal contents passing onwards. In the first class there is no spur; while in the second, as a rule, there always is one.

For the first class of cases a great deal can be done by rest, proper diet, opiates, and pads applied over the surface of the aperture, so as to block it up. And it is astonishing how, even in the second class, nature effects a cure. The first instance I ever saw was many years ago, in the person of a man upon whom I performed herniotomy, and found about 6 or 8 inches of small gut gangrenous. I simply slit it up, and left the parts otherwise untouched. The dead gut sloughed away, and a false anus resulted. From the stomachal end of the gut all its contents at first escaped, but gradually all the parts tucked up and closed in,

and a spontaneous cure resulted. I have now seen this occur on two or three occasions.

In the instances where there is no spur, and where all the usual trials of rest, diet, escharotics, and pads have failed, I imagine that the only satisfactory plan of treatment is by opening the abdomen, detaching the gut from its wall, and either stitching up the hole therein, or cutting out the piece in which the hole is situated. To dissect off the skin around the false anus and bring it over the aperture has proved a complete failure. The thin fæcal matter works its way very soon outwards, and the union breaks down.

In the fistulæ where a spur exists, and where milder measures of treatment have failed, some good may occasionally be got by the introduction of a rubber tube in such a way as to press against the spur, a method which I described a few years ago in some "Clinical Notes" which I published. Failing this, Dupuytren's enterotome may be used, or some of its modifications. But there will always be a residuum of cases which resist all manner of treatment, and where laparotomy, with stitching up of the orifice in the gut, or excision of that portion in which the orifice exists, will have to be performed. In 1883, Mr. Makins, of St. Thomas's Hospital, excised a portion of bowel for the cure of a fistula with success, and published in the Hospital Reports an admirable table of all the cases he had been able to collect up to that date. He found published records of thirty-nine cases, with a mortality of fifteen, or nearly 40 per cent. This is a very heavy death-rate, and contrasts most unfavourably with Dupuytren's celebrated table of forty-one cases treated by his enterotome, where there were only three deaths, i.e., at the rate of about 7 per cent. On the other hand, after resection, the cure was almost invariably complete; whereas out of Dupuytren's forty-one cases, nine were not improved. Per contra, our rapidly-improving knowledge of abdominal surgery will, without doubt, give in the future a much diminished death-rate, and enable us to attack cases of fæcal fistula which will not yield to milder means with a much more confident hope of success.

In Dupuytren's original paper, he says:—"It is something, no doubt, to have re-established a communication between the two ends of the intestine, and to have placed them in a position to bear without accident a compress which compels the contents to pass from the upper to the lower part of the gut. But something, I confess, remains to be done. We have still to find a means of causing an opening in the skin, now become useless, to cicatrise in all cases. I am so impressed with the necessity of discovering some means of the kind, that I do not hesitate to propose this as a study to the rising talent of our schools. And I declare without hesitation that the discovery of some method which should finish promptly and without danger, and in every case, the cure of this

disgusting malady, would be worthy of being considered one of the most important achievements of which the healing art can boast." We have not quite reached this stage yet, but some day we may do so.—*Liverpool Med.-Chir. Journal, July* 1888, *p.* 301.

73.—ON THE TREATMENT OF CONGENITAL HERNIA.

By Lewis W. Marshall, M.D., Surgeon to the Children's Hospital, Nottingham.

Mr. Timothy Holmes called attention, in an address on "Children's Hospitals as Medical Schools," which was published in the Journal of October 30th, 1886, to the absence of statistics in relation to congenital hernia and its persistency. Acting upon his suggestion I kept a record in 1887 of all cases occurring amongst my hospital patients, and at the commencement of this year tabulated them as follows, namely:

No. of Cases.	Cured.	Not Well.	No Reply.
41 (all boys)	20 ..	12 ..	9

Each of these forty-one cases was treated by the wool-truss suggested first by Mr. Coates, of Salisbury, and more recently referred to by Mr. Lund. This method commends itself to us because it can so thoroughly be carried out by any mother of ordinary intelligence, and efficient means of support are obtained at a trivial cost.

In analysing the forty-one cases I find that in every instance one of two things was noted, and sometimes both—either a congenital phimosis existed, or an imperfect urethral opening, and sometimes both. Having recognised for many years that hindrances of this kind were a common cause of hernia in male children, I had not quite realised how very frequently the two co-existed as cause and effect. That they occupy this position is shown by the speedy relief gained by removal of the conditions referred to, either by circumcision—freeing the prepuce from the glans penis by passing a probe round between them, and maintaining this separation, or when necessary by slitting up the urethra. From the twelve cases entered as "not well," I learn that in all some one or more of these urinary conditions still existed. In one case pertussis was present; in another, obstinate constipation; and in several, malnutrition, with very deficient muscular development. We may safely assume, I think, that at least half of those cases in which no reply had been given were cured. In ten of the twelve cases still showing a hernia, a phimosis had to be treated more energetically than had been done before, or the urethra was enlarged. Considerable objection is often raised to circumcision, and the simpler method of dilatation has therefore been adopted first in some cases. I am disposed to think that the importance of the size of the orifice of the urethra has been to some extent lost sight

of, because cases have not uncommonly come into my hands in which circumcision, having been practised by another surgeon, the difficulty in passing water still remains, and is relieved at once by slitting the urethra. I regret that in the notes no mention has been made of the number of double herniæ, but my impression is that there were not more than half a dozen. All the children were under three years of age.

The practical outcome of this inquiry is that if the primary factor in the production of the hernia is duly recognised and dealt with, the pressure given by the wool-truss is ample to ensure closure of the canal when the nutrition is maintained. As a proof of the importance of this statement in reference to the nutrition may be quoted the fact that "breast" babies always do best. Nothing need be said by me about the best form of wool, &c., because Mr. Pye has so fully described all these details already (see *Retrospect*, vol. xcvi., p. 277), and the opinion expressed by him I can endorse.—*British Med. Journal, May* 19, 1888, *p* 1056.

ORGANS OF URINE AND GENERATION.

74.—ON FIFTEEN CASES OF TUMOURS OF THE BLADDER, DIAGNOSED BY ELECTRO-ENDOSCOPIC CYSTOSCOPE.

By Dr. Max Nitze, Berlin.

I wish to direct the attention of my English confrères to the value of the electro-endoscopic mode of examination of the male urinary bladder, invented by me. I believe I could not have chosen a more suitable theme for that purpose than a short report of the bladder tumours diagnosed by me cystoscopically; for the diagnosis of these new formations offers the greatest difficulty, and in most cases it has been impossible till now to prove their existence with accuracy without digital exploration of the bladder. By the new method of cystoscopical examination the conditions have entirely changed. One look into the bladder, illuminated as if by daylight, is generally sufficient to afford means for forming an opinion of all the questions coming into consideration—viz., size, form, and site of the tumour. The accompanying diagrams (Figs. 1, 2, 3, 4) may give an idea of the appearance which the different forms of bladder tumours present endoscopically. I regret that they cannot show the brightness of the light by which one sees the tumours during examination. The celebrated Vienna specialist, v. Dittel, is right in saying "that they offer sometimes truly charming pictures;" especially certain kinds of villous tumours, whose long slender villi floating in the liquid often present a splendid appearance. The following are the cases cystoscopically diagnosed by me.

Case 1.—A man, aged fifty-five, under the care of Dr. Ch. Mayer,

suffered from attacks of hæmaturia for thirty years. During the last six years he has had dysuria and inability to empty the bladder completely. The patient had been examined by the sound repeatedly by eminent surgeons and specialists, but none could give a certain diagnosis. On Nov. 11, 1886, I undertook the cystoscopic examination. I found on the anterior wall of the bladder a puffy swelling covered with white masses of mucus. (Fig. 1.) The trigone was covered by a mass consisting of pointed papillæ. On account of the weakness of the patient extirpation was impossible. The patient became weaker and weaker, and died in June, 1887. The post-mortem examination showed the internal orifice of the urethra surrounded by a swelling representing a continuous tumour as large as a small apple. It was found that the instrument had penetrated through the middle of this swelling, which bled easily on pressure. In spite of this the clearness of the picture was not interfered with in the least.

Case 2.—A man, aged fifty, was obliged to exert a strong pressure in order to empty the bladder. The flow of urine often stopped. He himself introduced a catheter, and on withdrawing it a piece of villous tissue was found. On Dec. 10th, 1886, I saw, on cystoscopical examination, directly and immediately over the internal orifice of the urethra, a villous swelling hanging from the anterior wall of the bladder. (Fig. 2.) On Jan. 15th, 1887, extirpation of the tumour by means of the high section was performed by Prof. Bergmann. The size of the tumour (which was as large as a pigeon's egg) and its position corresponded exactly to the endoscopic picture. The patient recovered.

Case 3.—A patient under the care of Prof. Madelung, aged fifty-five, suffered from attacks of hæmaturia. Examination by sound and rectal palpation had given me negative results. On Feb. 20th, 1887, cystoscopical examination was made. On the left side of the trigone a tumour with a broad base was seen, which resembled somewhat a strawberry in size and form. (Fig. 3.) On March 1st, Prof. Madelung undertook the extirpation of the tumour. The appearance corresponded exactly to the cystoscopic picture. The patient recovered.

Case 4.—This was a patient on whom Dr. Israel had performed the high section a long time before, on account of a bladder tumour. The extent was so great that only its most prominent part could be removed. The microscopical examination proved the diagnosis of cancer. Quick healing took place. The patient became free from pain, and the urine became clear. In order to see what had become of the remaining part, the cystoscopical examination was undertaken on April 3rd. It was easy to see that the right lateral wall was covered to an extent of from three to four centimetres with thick masses of verrucous and fungiform excrescences. (Fig. 4.)

Case 5.—A patient of Dr. Boegehold suffered from attacks of

Fig. 1.

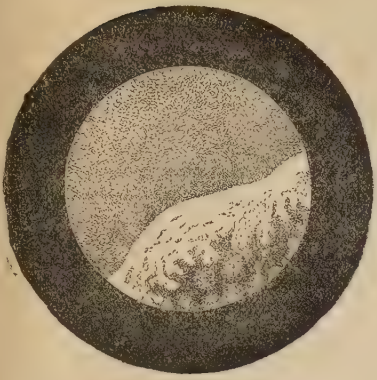


Fig. 3.

Fig. 5.

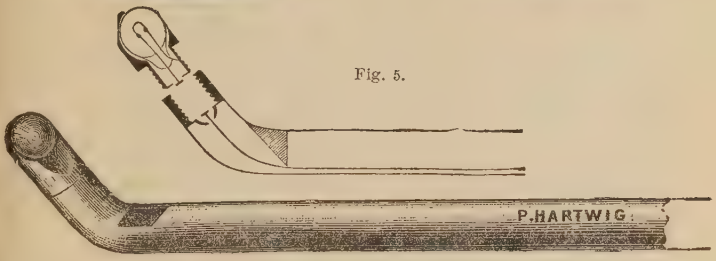


Fig. 2.

Fig. 4.

hæmaturia for six months. Examination by sound gave negative results. The cystoscopic examination at once showed in the region of the left ureter a tumour consisting of long floating villi. The patient objected to an operation.

Case 6.—A patient under the care of Dr. Goldschmidt had for seven months repeated attacks of hæmaturia and pain in the region of the bladder. Examination by sound and rectal palpation gave negative results. The cystoscopic examination, on May 7th, 1887, showed the lower half of the right wall of the bladder covered by dense verrucous excrescences. On account of the great extent of the tumour and the probability of malignancy, operation was not deemed advisable.

Case 7.—This patient, under the care of Dr. Behnke, had for two years and a half, from time to time, attacks of hæmaturia. The cystoscopic examination showed on the left wall of the bladder a large villous tumour. Soon after I showed the patient to the Gesellschaft für Heilkunde. Many members of the profession convinced themselves by inspection of the evident clearness of the appearances. Operation was proposed to the patient, but he refused.

Case 8.—A patient, aged sixty-three, in the clinique of Prof. Leyden, had for a long time profuse hæmaturia. Examination by sound had given negative results. On July 9th, 1887, cystoscopical examination was made, the conditions being particularly unfavourable. The meatus was narrower than normal; the urine contained much blood, and was of a dark, brownish-red colour. In spite of this the cystoscope allowed of a satisfactory view. Many confrères could see the villous tumour hanging from the anterior wall of the bladder. It was as large as a walnut; some of the villi appeared black-coloured in consequence of hemorrhage. The patient left the hospital soon afterwards.

Case 9.—A patient, aged sixty, in the clinique of Prof. Bergmann. For a long time he had had attacks of hæmaturia and difficulty in emptying the bladder. Repeated examination by sound and rectal palpation had given negative results. On Nov. 14th, 1887, cystoscopic examination was made. I saw on the floor of the bladder a flat button-shaped tumour covered by short villi. The front of the left lateral wall was found covered with similar villi as far as the orifice of the urethra. On Nov. 17th operation (high section) was performed, when the cystoscopical appearances were in every respect confirmed, but at the same time it was observed that the carcinomatous infiltration under the normal mucous membrane was so extensive that a complete removal was impossible. After some time the patient died from the new formation.

Case 10.—A female patient of Prof. Sonnenburg, aged twenty-one, observed for nine months from time to time that the urine was mixed with blood. Lately a well-marked villus was expelled with the urine. The examination by sound showed nothing abnormal.

On Nov. 21st, cystoscopic examination showed on the outer side of the right ureter a flat coin-shaped tumour consisting of short villi. As the patient was in the fourth month of pregnancy, a radical operation was rejected. Prof. Sonnenburg dilated the urethra and scraped the tumour away with his finger-nail. The conditions corresponded exactly with cystoscopical appearance.

Case 11.—A man, aged sixty-seven, sent to me by Dr. Behnke, had since January, 1887, attacks of hæmaturia of gradually increasing frequency. On Nov. 30th, cystoscopical examination was made. I found on the lowest part of the right wall of the bladder a prominent tumour with a villous surface, as large as a walnut. I removed it by means of the high section on Dec. 9th. Concerning the size, site, and form, the swelling corresponded to the examination. The microscope confirmed the malignant character of the excised swelling. The patient made a good recovery. The wound cicatrised completely, when, in the middle of the new cicatrisation, two suspicious prominences appeared, which grew quickly, and present now a richly proliferating tumour over the symphysis.

Case 12.—A female patient under the care of Prof. Jacobson. For some years she had had intermittent attacks of hæmaturia. Some of the symptoms were in favour of the origin of the blood being from the kidney. On Jan. 21st, cystoscopical examination was made. Immediately behind the internal orifice of the urethra, on the floor of the bladder, a tubercular tumour consisting of blunt papillæ was found. Operation was proposed, but refused by patient.

Case 13.—A man, aged fifty-three, had suffered since 1885 from intermittent hæmaturia. By degrees the bleeding increased in frequency and quantity. In June, 1887, the patient went into a Berlin hospital, where he was examined per rectum and by the sound by an eminent surgeon. Nothing abnormal could be detected in the bladder. The examination was followed by fever, which continued for some weeks, the patient at the same time losing strength. The loss of blood ceased for a long time, and there occurred pain on micturition of increasing intensity. In November, 1887, there was a recurrence of hæmaturia. On Dec. 15th, I undertook the cystoscopic examination, which was rendered difficult from the fact that on introducing the prism copious hemorrhage took place. In spite of this, I could distinctly observe on the right wall of the bladder a tumour the size of a small apple. I removed the tumour on Jan. 12th, 1888, by means of the high section. The conditions corresponded exactly to the appearances found on cystoscopic examination. The apple-sized tumour hung from a firm pedicle, of the thickness of two centimetres, with its edges curved in so as to resemble a mushroom. The patient recovered.

Case 14.—This patient, aged forty-nine, had suffered many years ago from gonorrhœa, accompanied by cystitis, orchitis, and suppurative prostatitis. Eventually these gonorrhœal complications

disappeared, but a slight catarrh remained. On account of the presence of blood in the urine, Dr. Marc, of Wildungen, under whose care the patient was, suspected the existence of a bladder tumour, and sent the patient to me. On Jan. 14th, cystoscopic examination showed a papilloma as large as a walnut, situated on the lower part of the right wall of the bladder. On Jan. 25th I excised the tumour by means of the high section. The conditions confirmed exactly what was observed on endoscopic examination. The wound has now nearly healed, and the patient is otherwise well.

Case 15.—This patient (a man, aged fifty-seven) was sent to me by Dr. Kreissmann, suffering from repeated attacks of hæmaturia, dating from Nov., 1887. The cystoscope showed an irregularly shaped tumour covered with short villi on the left wall of the bladder, and also a second one smaller in size and more rounded in form. On March 10th, I undertook the extirpation of the tumour, excising the tumour together with the corresponding part of the wall of the bladder, after opening the bladder by means of suprapubic operation. The conditions confirmed the appearances found endoscopically. As yet the patient is free from fever.

The above shortly described fifteen cases of bladder tumours have been diagnosed by me cystoscopically during the last sixteen months. This is a proof, on the one hand, of the value of cystoscopic examination ; on the other hand, of the fact that the new formations in question are not of so rare occurrence as has been hitherto thought. I would like to emphasise that the important results were often obtained under the most difficult circumstances. In several cases the external orifice of the urethra was found abnormally small ; in others (Cases 8 and 11) the examination was made during the occurrence of a continuous hemorrhage from the tumour : in one case (Case 1) I introduced the instrument through the centre of the tumour, which bled on the slightest pressure. In spite of this the appearances were seen satisfactorily. In the first case a post-mortem examination was made ; in eight other cases (Cases 2, 3, 9, 10, 11, 13, 14, and 15) the tumour was extirpated, seven times by the high section—in one case, that of a woman, through the dilated urethra. In these nine cases the endoscopic appearances were in every important respect confirmed in the most perfect manner. In every case my opinion regarding the size, position, and form was found to be correct. It is only in those cases where the edges of the tumour overlap the short pedicle that the latter cannot be observed. Besides, the relative good results of the operations undertaken on account of the cystoscopic appearance may be emphasised. Of the eight patients from whom the tumour had been extirpated none died from the result of the operation. Case 9 proved fatal on account of the progressive extension of the growth. In the eleventh case there was a recurrence, but the patient is still alive. Five patients (Cases 2, 3, 10, 13, 14)

must be considered entirely cured. Case 15 is still under treatment, and, as the conditions of the patient are at present (ninth day after operation) in every way satisfactory, a complete recovery is anticipated.

Finally, on comparing the above cystoscopic appearances with the results obtained by other methods of examination, it must be observed that the examination of the urine, in most cases carefully made, had only in two cases shown the presence of villous tissue, which in one instance was brought out by the catheter. The rectal palpation, when made, had always given negative results. Further, the examination by means of the sound had been made in nine cases before the cystoscopic examination. In none of the cases had the sound revealed the presence of a tumour (which in two had attained the size of a small apple), although the examination was made by most experienced surgeons and eminent specialists. Those cases show how imperfect an instrument the sound is for the diagnosis of bladder tumours.

Only one method can compare with the cystoscope in giving valuable information regarding the size and nature of a bladder tumour—viz., the digital exploration of the internal surface of the bladder after a previous *boutonnière*, or the high section. The superiority of the cystoscopic method over the latter, on account of the smaller amount of inconvenience it causes the patient, need not be insisted on. The latter involves a cutting operation not free from danger, as well as deep narcosis, while the cystoscopic method is similar to a simple catheterisation.

The accompanying diagram (Fig. 5) shows the instrument used by me for cystoscopic examination. It has been made by the Berlin instrument maker, Hartwig, according to my instructions. The source of the light (Mignon lamp) is cemented in a silver capsule, which is screwed into the distal end of the cystoscope. This instrument is superior to that made by Leiter, the Vienna instrument maker, because of its greater simplicity in construction, which allows the lamp to be easily replaced when necessary, and also on account of the greater length of the shaft.—*Lancet, April* 21, 1888, *p.* 763.

75.—ON THE SYMPTOMS, TREATMENT AND RESULTS IN SARCOMA OF THE BLADDER.

By Fred. A. Southam, M.B.Oxon., F.R.C.S., Assistant Surgeon to the Royal Infirmary, Manchester.

The general symptoms of sarcoma of the bladder are very similar to those met with in other varieties of vesical growths, consisting of hæmaturia with signs of irritability of the bladder, viz., pain and increased frequency in micturition; in most cases evidences of obstruction to the escape of urine are sooner or later produced,

micturition becoming difficult and attended by straining efforts. In addition, attacks of retention and incontinence of urine are sometimes present in the later stages, and in some instances distinct evidences of the existence of the growth can be detected upon a physical examination of the bladder.

Hæmaturia is usually a prominent and often an early symptom. It frequently precedes the signs of irritability of the bladder, so that in this respect sarcoma resembles papilloma—for, as Sir H. Thompson has pointed out, a painless hemorrhage often continuing for a considerable period, sometimes for several years, without any other symptoms, is generally characteristic of the latter affection. As in papilloma, the bleeding at first occurs in attacks separated by intervals of varying duration, during which the urine is quite clear. As the disease progresses, the attacks last longer and become more frequent, until after a time the urine is never free from blood. In other instances blood may appear in the urine, and at the same time micturition becomes painful and increased in frequency, as in one case where these symptoms appeared simultaneously and had been present for a period of two years when the patient came under notice. In other cases, again, hæmaturia may be a late symptom, for in one instance it only appeared a week before death, being preceded for a period of three months by evidences of irritability of the bladder. When this happens, sarcoma resembles cancer of the bladder, for in the latter affection (contrary to what is the rule in cases of papilloma) pain and frequency in micturition usually precede the appearance of blood in the urine. Occasionally hæmaturia is absent throughout the entire course of the case, as in one instance recorded by Marchand, where for two years the only symptoms were those of vesical catarrh. When hæmaturia is present, the quantity of blood varies; in some cases it is very considerable, large clots being passed in addition to almost pure blood; in other cases it may be very slight, merely staining the urine. As in other cases of vesical hemorrhage, the blood is usually present in greatest quantity towards the end of micturition, and bleeding is generally excited or increased after the introduction of instruments into the interior of the bladder.

Pain and Frequent Micturition.—As already stated, micturition, sooner or later, becomes painful and increased in frequency; for the tumour, as it increases in size, projects into the interior of the bladder and irritates the mucous membrane, which consequently becomes affected with chronic inflammation. In some cases pain is slight and only complained of during micturition; in others, and especially in the later stages, it is very severe and almost constantly present; it may be felt only in the perineum and at the neck of the bladder, or in the thighs, buttocks, and lower part of the abdomen; or it may be referred chiefly to the end of the penis.

Difficult Micturition.—After a time, micturition usually becomes more or less difficult and accompanied by straining efforts. This is especially likely to occur when the growth involves the neck of the bladder, or when it possesses a pedicle, so that it can fall against and obstruct the vesical orifice of the urethra.

Sudden Stoppage in Stream.—Under the same circumstances there may be occasional sudden stoppages in the stream of urine, which is only restored after severe straining; this symptom is also sometimes observed independently of these causes, if large clots of blood passed with urine become temporarily arrested in the urethra.

Retention of Urine.—Occasionally the obstruction produced from one or other, or a combination of the preceding causes, is so complete that retention of urine results. This condition was present in one instance, ths vesical orifice of the urethra being blocked by the growth and the bladder being also filled with a firm blood-clot.

Incontinence of Urine.—Incontinence of urine may be present under these circumstances as the result of overflow from the distended bladder, evidences of which can usually be detected.

Condition of the Urine.—Except for the presence of blood, the urine may for a considerable period retain its normal character. As soon, however, as cystitis is set up, it presents the changes which are usually associated with that condition, becoming alkaline in reaction and depositing a quantity of ropy, viscid mucus. Examined microscopically, it will be found to contain, in addition to blood, pus and epithelial cells, often in considerable quantity, along with crystals of triple phosphate, &c. In five cases the urine was of low specific gravity (1009—1015), indicating, as was proved in three cases where an autopsy was made, the coexistence of secondary renal disease. As in other cases of vesical tumour, the condition known as "fibrinuria" may occasionally be observed, for Weir describes an instance where the urine was found to become "almost jellied from effused fibrin." It is only very exceptionally that distinct portions of growth are met with in the urine. In this respect sarcoma resembles cancer and differs from papilloma, for in the latter affection shreds of tissue, which examined microscopically are found to consist of typical villi, can frequently be detected in the urine. This is doubtless to be accounted for by the denser and firmer nature of the tumour in most cases of sarcoma, and also by the fact that even when the surface of the tumour is villous, the villi are not so long and slender as in papilloma, and are therefore less likely to be detached and come away with the urine. In none of the six cases were particles of growth detected in the urine.

Physical Signs.—When the tumour is of firm consistence, and of considerable size, its presence can sometimes be detected on digital examination *per rectum* or *per vaginam*, or upon bimanual

palpation, or upon exploring the bladder with a sound, as in many cases of cancer. Under these circumstances, it will, however, be felt, not as a hard irregular induration, a condition which is usually characteristic of cancer, but rather as an indistinct fulness, or a smooth, elastic swelling. When, on the other hand, the tumour is of softish consistence, it will often escape detection on examination by any of these methods, as in papilloma. It is only in the advanced stage of the disease that infiltration of the parts external to the bladder, the result of the direct extension of the growth, can be detected during life.

Treatment.—Inasmuch as palliative treatment is of little use, the bladder should be explored and an attempt made to remove the growth in the usual way, viz., with Thompson's forceps, by scraping with a Volkmann's spoon or the finger nail, or by means of some form of écraseur In some instances, as, for example, when the growth is easily within reach of the finger, and of moderate dimensions, or pedunculated, this can be effected through a perineal opening in males, or through the dilated urethra in females. In one case (male) the tumour was removed twice from the perineum, and in another (female) per urethram, without much difficulty. In all cases, however, and especially when the growths are multiple, sessile, and of large size, or if the perineum is deep and the patient stout, more complete access will be obtained through a supra-pubic opening. In one instance the growth was removed by supra-pubic cystotomy, after exploring the bladder from the perineum, its diffuse nature rendering its extirpation by the latter route impracticable. If on exploring the bladder, either from the perineum or from above the pubes, the growth, from its nature and connections—e.g., if it is sessile and of firm consistence, extensively infiltrating the bladder-wall—is found to be not easily removable, or if its removal would be attended by danger, then it is a question whether it is not advisable to leave it, simply providing free bladder-drainage by establishing a urinary fistula on the same principle as in cases of cancer, namely, with the object of providing an outlet for the escape of urine, and in this way of relieving the pain and straining efforts which attend the frequent and ineffectual attempts at micturition. At the same time, by maintaining the bladder in a state of physiological rest, hemorrhage will be checked or diminished; while by frequently washing out the viscus with some antiseptic lotion, the inflammation of its walls can be relieved, and the offensive character of the urine, which when present, is in itself a source of irritation, can also be corrected.

Results of Operative Interference.—From a consideration of these results, it would appear that recurrence is very likely to take place after operation, and even if not locally, possibly in some other part of the body; still, life is undoubtedly prolonged, and symptoms are relieved by a removal of the tumour, though this may

not be complete. In cases where the tumour is found to be not removable on opening the bladder, the free drainage which the operation will secure will always afford relief, so that under these circumstances, even supposing that life is not prolonged, benefit will always be derived from operative interference.—*Medical Chronicle, July* 1888, *p.* 280.

76.—ON THE DIAGNOSIS OF CANCER OF THE TESTIS.

By William Colles, M.D., F.R.C.S.I., Regius Professor of Surgery in the University of Dublin.

In general the commencement of malignant disease of the testis is denoted by the occurrence of a hydrocele, which is probably the result of irritation produced by the altered condition of the organ.

The course of events, then, is as follows:—The patient applies to the surgeon for the treatment of a hydrocele apparently simple, the transparency of the tumour, situation of testis, and all other symptoms being present. The surgeon does not hesitate as to the nature or treatment of the disease and proceeds to tapping, which operation he performs to his own and the patient's satisfaction. Before leaving he tells the patient that only a palliative treatment has been adopted; that he must expect the fluid to be again secreted, and that the tumour will require to be tapped again in from four to six months. About this period the patient returns, the tumour apparently having regained the size it formerly possessed. The surgeon, feeling the tumour soft and fluctuating, has not much doubt on the subject, and again proceeds to endeavour to draw off the liquid. He passes in the trochar and canula, but on withdrawing the trochar he observes some blood to flow, and at times this alarms him, and he withdraws the canula and closes the wound. I have seen a case in which, however, suspecting that some blood may have been mixed with the fluid, either from some injury or the trochar wounding a vein, he had allowed blood to flow to the extent of a few ounces, till he saw that, although the blood came away, there was no diminution in the size or tension of the tumour; finally, the patient becoming weak from loss of blood, he became alarmed, and closed the wound.

The surgeon then tries to find the cause of this failure, and to investigate the nature of the disease, but he finds much difficulty in distinguishing between the symptoms of hydrocele and those of malignant disease, a few drops of blood or slight thickening in the sac rendering the ordinary test of transparency unavailing. There may be a slight blush of dusky-red colour on the scrotum, and the veins may appear slightly enlarged and more numerous. We must therefore come to examine more closely the symptoms which may distinguish the two diseases.

In hydrocele, the testis can be grasped at the lower and back

part of the tumour; and by forcing the fluid from its proximity, it feels quite smooth, and gives the patient the sensation of pressure on the organ. In encephaloid the testis cannot be so readily separated; the tumour may be felt, but is hard, irregular on its surface, and does not give the same sensation to the patient. In examining the bulk of the tumour in malignant disease the sense of fluctuation is most deceptive. Still it is not so soft and yielding as in hydrocele; in the latter it can be moved about from one part to another, and may change its form on change of position. On palpation, also, it will feel much more yielding, and give the sensation of undulatory motion in the fluid. In the malignant disease the semi-fluid substance cannot be moved from its position, because it is confined by the tunica albuginea of the testis. In the hydrocele the fluid is very movable, yielding in every direction, especially if the patient be standing; it can be pushed up so as to fill the upper part of the tunica vaginalis, and distend the sac up to the external ring.

The condition of the inguinal region affords us much assistance in our diagnosis. In malignant disease the cord is readily felt; it may be enlarged, but it can be moved under the fingers, and no other substance can be felt. In the hydrocele, at first when small the cord may be felt, but we always feel a portion of the tunica vaginalis more or less distended with fluid. As the hydrocele increases it expands all the cavity of the sac up to the ring; this acts as a wedge separating the integuments from the abdominal parietes, and by this means burying the penis, so that when the hydrocele becomes of great size the organ is invisible, its outline can be marked or felt by a ridge of integuments along the inner side of the tumour, and several concentric folds of integument alone mark the orifice from which the urine flows. In this case, when the fluid is drawn off, the penis is gradually restored to sight, and the patient rejoices to see his old friend return. This burying of the penis is much more marked or occurs much more rapidly in large scrotal hernia when irreducible or left without a truss, because the force distending the canal is much more effectual, as it is more solid and irresistible.

These are the principal points which will guide our diagnosis in this form of disease. As to progress and treatment, little remains to be recorded. The disease may have a fatal termination, either by local or by constitutional contamination. I have seen a tumour of the liver of great size show itself before the wound made by the operation was healed; the glands deep in the pelvis also become much engorged; or the patient may die from acute lung disease. Nor is this last-named termination to be regretted, for nothing can exceed the misery of the patient when the return of the disease shows itself locally, either on the end of the stump remaining after operation or upon the giving way of the integuments. Here a

fungus mass will quickly arise, grow to a considerable size, then slough away, and fresh fungus arise. I have seen it so large as in a few weeks to resemble a coil of intestine lying in the scrotum; this is attended with a very profuse watery discharge of a most peculiarly fœtid odour, penetrating the entire house, and hardly to be influenced by the strongest deodorants.

During the progress of the disease the patient assumes that pale waxy condition where the lips and every red surface lose their colour, indicating a very altered condition of the blood, as if, to use a common expression, the blood has become converted into water; as if there were few or no sound red globules in the fluid, so that the fungus may, if necessary, be removed with scarcely any loss of blood. These changes in the circulation keep pace with the local changes, and would lead us to suppose that the first deposit of a malignant cell was contemporaneous with a similar change in a red globule of the blood.

Finally, treatment is only to be considered, as regards the subject of operation, if the cord has any portion uncontaminated by the disease. If it has a natural feel we may remove the disease, but only with the expectation that the patient will die of some internal affection in a few months; if the cord is thickened we fear that the results of the operation will be that the disease will return in the stump or the cicatrix, and thus render the patient an object of disgust to himself and friends by a profuse and most fœtid discharge. I have seen some cases in which the same malignant form of disease was developed under the integuments, sometimes on the front of the chest and sometimes on the scapula. Here it is with difficulty to be distinguished from an ordinary chronic abscess, and any surgical interference with it is to be strictly avoided.—*Dublin Journal of Med. Science, July* 1888, *p.* 2.

77.—ON THE RADICAL CURE OF HYDROCELE.

By Henry Morris, F.R.C.S., Surgeon to the Middlesex Hospital.

[The paper from which the following excerpt is taken contains the narratives of two cases, which "show that the excision of nearly "the whole tunica vaginalis is not a guarantee of success, but that, "as in the case of abscess, dermoid, sebaceous and other cysts, so in "vaginal hydrocele a small corner of the cavity unobliterated, a "small portion of the sac left behind, may serve as the nucleus of "a new formation." Speaking of recurrence of the hydrocele after various methods of treatment, Mr. Morris says:]

I have known cases of antiseptic incision followed by recurrence, and I have seen excision performed with success after both iodine injection and free incision had failed. I have on several occasions practised excision, by which, of course, is always meant excision of the parietal portion of the tunica vaginalis (and some include

also that covering the cord), but not the visceral layer covering the testicle itself. But the only instances in which I have seen recurrence after excision are the two cases herein recorded. Nor am I aware of any published cases of recurrence of the hydrocele after excision of the vaginal tunic of the testis in the manner described by any of the authors who have mentioned it.

The occasional failure of the injection treatment—according to some, the failures are as many as twenty per cent. with the iodine method; the general opinion that certain conditions of the sac and testicle are unfit for injection treatment; the influence which the antiseptic treatment of wounds has exercised, and, perhaps, also the success attending the various modern operations for the radical cure of hernia, have induced many surgeons to revert to incision and excision.

From a comparison between the closed and open treatment—i.e., the treatment by injection on the one hand, and incision and excision on the other—there does not seem to be much, if anything, to choose, either as to the certainty of result or duration of treatment. Nor does it appear that either the thickness and opacity of the sac, or the simple enlargement, or enlargement with irregularity in shape, of the testicle; or the great size of the tumour, or the encysted nature of the hydrocele, or the previous failure of the iodine treatment is of itself sufficient reason for rejecting the iodine treatment in favour of incision or excision. But, on the other hand, there seems to be nothing which need deter a surgeon from incising or excising a hydrocele under either of the above conditions, unless it be that a cutting operation is dreaded by the patient, or is deemed dangerous to the particular individual.

As the complete obliteration of the cavity of the tunica vaginalis is the only security against a recurrence of the hydrocele; and as this result can be obtained as completely by the adhesion which follows injections as by the granulations which result from incision or excision; and further, as relapses are known to follow incision and excision no matter how thoroughly performed, we cannot yet be said to have discovered a more satisfactory mode of *radical cure* than the injection of small quantities of some irritating fluid, after the manner in vogue since the publication of the papers above referred to by Sir Ranald Martin.

The only cases in which, as it seems to me, it would be better to incise or excise than to inject, are the following:

1. When we are in doubt as to the precise nature or relations of the hydrocele sac—e.g., as to whether the tumour is a congenital hydrocele, or a hydrocele of a hernial sac.

2. In some cases, when hernia, whether reducible or irreducible, complicates a hydrocele.

3. When a foreign body in the tunica vaginalis is the cause of the hydrocele.

4. When we have reason to think that the hydrocele is caused by, or associated with, a diseased condition of the testis, for which castration would be the right treatment.

5. When, as in a case I have recently operated upon, a vaginal hydrocele is associated on the same side with an encysted hydrocele of the cord and a bubonocele. In this last case excision of both the hydroceles, and the hernial sac, and closure of the pillars of the external abdominal ring were successfully accomplished at the same time.

After either incision or excision, it is advised, in order to obtain complete obliteration of the hydrocele sac, to scrape gently the surface of the remaining membrane, or rub it over with iodine, carbolic acid, chloride of zinc, or some other stimulating fluid, and throughout the healing process to keep the wound well drained or dressed from the bottom, with lint or gauze coated with boracic ointment, or iodoform and vaseline. The advantage of stuffing the wound with lint moistened with oil, or coated with ointment, instead of with dry lint is, that the former can be easily removed at the first and every successive dressing if needful, with little or no pain, and without risk of exciting hemorrhage.

The modern "antiseptic incision" differs from the old method of a long free incision, and subsequent stuffing of the sac. The "antiseptic incision" is practically only the "tent" treatment, employed under antiseptic dressing, and after stitching the vaginal sac to the skin of the scrotum. The principle is the same as that of the "tent" and the process of cure is the same as that sought for by injection, free incision and stuffing, and excision.—*American Journal of Med. Science, Aug.* 1888, *p.* 158.

78.—ON THE SURGERY OF THE ENLARGED PROSTATE.

By Wm. T. Belfield, M.D., Surg. Cook County Hospital, Chicago.

Exploration of the bladder in fifteen cases of severe cystitis dependent upon prostatic enlargement has confirmed the teaching of numerous autopsies, namely, that the severest vesical disturbance is induced, not by diffuse prostatic enlargement—which may be detected by rectal examination—but by localised prostatic outgrowths, which are not discoverable per rectum nor, indeed, in any way other than by the finger in the bladder. These tumours—which, like uterine fibroids, are true myomata—may be associated with much or little diffuse hypertrophy; while often originating in the substance of the gland, they are frequently found, when the cystitis has become severe, protruding at or near the urethro-vesical orifice. In this locality even a small tumour, associated with but little diffuse hypertrophy, may seriously impede the exit of urine and entail the usual cystitis, calculus formation, &c.

Among my fifteen cases such intravesical tumours were found in

eight—three times as a single myoma, or so-called "middle lobe," and in five as a more or less complete ring around the vesical orifice. In five of the remaining cases the growths were chiefly intraprostatic; in the two others there was found diffuse hypertrophy, with encysted calculi.

In eight of the fifteen cases, therefore, the prostatic obstructions were, at least from the anatomical stand-point, removable. These obstacles are accessible to the surgeon by two routes—perineal and supra-pubic incision. That the supra-pubic renders the bladder more accessible for manipulation than the perineal incision is apparent to all who have approached it through both; the inferiority of the latter is extreme when the prostate is enlarged—a fact impressed upon me in many cases, including two where I removed with the cautery portions of prostatic outgrowths through a perineal incision.

In June, 1886, I undertook supra-pubic prostatectomy, but after the extraction of two large calculi was forced by the patient's condition to abandon the operation; in October of the same year I executed the plan, removing a "middle lobe" of the size and shape of a small almond. The patient, seventy-three years of age, who for a year had been dependent upon his catheter, has urinated freely since. In a second case I repeated the operation, removing a mass as large as a bean. Mr. McGill recently reported to the London Clinical Society three cases in which the same operation was performed with entire success.

It would seem, therefore, that these cases of severe and protracted cystitis from prostatic enlargement should no longer be universally permitted to suffer without an attempt at operative relief; that in suitable cases, after failure of other means, a supra-pubic exploration of the bladder should be made. In a certain percentage of cases the obstacle to urination will be found as a projecting prostatic growth which can be removed with scissors or cautery. The latter minimizes hemorrhage and the chance of septic infection, the bladder-wall being meanwhile protected by a thin sheet of asbestos.

When no removable intravesical tumours are found, the bladder is at least drained and rested, and the prostatic œdema, usual in advanced cases, subsides; in cases by no means rare, calculi undetected by the sound, because encysted or ensconced below the prostate, will be found. In cases where the prostatic urethra is found to be hopelessly distorted and occluded, a permanent opening above the pubes can be maintained and fitted with a tube, dispensing with the painful and futile employment of the catheter. This proceeding, already successfully employed in a few cases, has, I think, a large field of usefulness in patients too feeble to endure a more radical operation or even the anæsthetic necessary thereto. A little chloroform—possibly even cocaine locally—produces

sufficient anæsthesia for the slight incision required for the insertion of a finger and a catheter into the bladder.

In cases of prostatic enlargement where the cystitis is still slight, and operative interference seems therefore unjustifiable, the use of an intense galvanic current, after Apostoli's method with uterine fibroids, is worthy of investigation. During the past year I have used it in four cases, and found, contrary to my expectation, that a current of fifty to ninety milliampères, through the prostate from bladder to rectum or perineum, is well borne. Two of the four cases have greatly improved: yet, as such patients often enjoy comparative comfort for considerable intervals without local treatment, it is by no means certain that the improvement is due to the current.—*New York Med. Record, March* 10, 1888, *p.* 272.

79.—ON A CASE OF NEPHRO-LITHOTOMY BY TERRIER'S TRANS-PERITONEAL METHOD.

By W. Gardner, M.D., Lecturer on Surgery, University of Adelaide, and Surgeon to the Adelaide Hospital.

Mrs. D., æt. about 55 years, had been several times under my care from Nov. 10, 1886, for slight attacks of dyspepsia, which, under careful dieting, with the use of hydr. acid and pepsine with the meals, were rapidly recovered from. Examination of the abdomen and of the chest revealed nothing abnormal, and the urine was also found to be normal. On March 6, 1888, another attack occurred which was not relieved by medicinal treatment, and another examination of the abdomen was made with the result of finding an enlargement of the left kidney. On March 29, I called Dr. Verco in consultation, and we concluded that there were symptoms pointing to a collection of fluid in or around the left kidney. We advised aspiration, which was carried out March 30, and 4 ounces of light amber-coloured fluid were removed, without any odour of urine.

With nitrate of silver the fluid yielded a copious white precipitate, and microscopically there were no signs of hydatid. Professor Rennie, by chemical analysis, could only find traces of urea. We were thus left in doubt whether the case was one of hydatid or hydro-nephrosis. After the operation the kidney swelling disappeared, three weeks after it enlarged again, and with the assistance of Dr. Verco (Dr. Giles administering ether), on April 18, 1888, the abdomen was opened by Langenbeck's incision, outside of the left rectus, and the parietal peritoneum was stitched to the edges of the wound. The visceral peritoneum was then divided and also stitched to the edges of the wound. The cystic swelling was then incised sufficiently to admit the forefinger, and on introducing it I could feel a small piece of calculous matter about the size of a split pea; this I removed, and on examining still further, I found

a small fragment also embedded in what I had then discovered to be the renal tissue. I tried to remove it with the nail, but found that on scratching the tissue, the stone appeared to become larger, and inserting a knife along the finger I incised a calyx and removed an irregularly-shaped calculus weighing 96 grs. There had been a doubtful history of an attack of renal colic, but it was certainly on the opposite side. A glass drainage tube was inserted, and the wound dressed with gauze and salicylic wool.

The highest temperatures recorded were 99·2° on the second day, and 99·6° on the third day: on every other occasion the temperature was normal. Urine was passed spontaneously on the day of operation, and the patient only vomited once after the ether.

April 19th, wound dressed; slight reddish coloured discharge from drainage tube, which was taken out, cleansed and replaced.—April 20th, Urine passed in last 24 hours, 10½ ounces. Bowels opened, and flatus passed freely. Carbolic gauze causing irritation of the skin, and changed for salicylic wool.—21st. Urine passed, 14 ounces in 24 hours.—22nd. Urine passed, 19 ounces in 24 hours.—23rd. Urine passed, 23 ounces in 24 hours.—24th. Urine passed, 31 ounces in 24 hours. Glass drainage tube removed and rubber tube substituted. Wound washed out daily with warm boric acid lotion. From this date the amount of urine continued much the same. —27th. Tube shortened.—28th. Tube finally removed. At this date Prof. Rennie examined the urine, and reported 254¼ grs. of urea in the urine which was collected during 24 hours.

Remarks.—It is probable that all doubtful conditions of the kidney requiring surgical interference had better be attacked by the abdominal incision, and the lumbar incision reserved for those cases in which the diagnosis is either absolutely certain, or for cases in which the contained fluid, whatever it may be, points to the loin.—*Australasian Med. Gazette, Aug.* 1888, *p.* 278.

80.—NOTE ON THE STATISTICS OF STONE OPERATIONS.

By Joseph Prochnov, M.D., Buda-Pesth.

Not long ago the excellent work of Sir Henry Thompson, Surgery of the Urinary Organs, translated into German by Dr. E. Dupuis (Wiesbaden, 1885), came into my hands, and in the last lecture (p. 149) I read the following lines: "It is the sum total of result obtained by employing the two procedures which is to be regarded as the measure of the surgeon's success. And I think I may say that a list of 782 cases in male adults, the mean of whose united ages exceeds 60 years, with 82 deaths, or 1 in 9½ cases, is a result which will be held to justify the selection and adaptation of the method to the case, which has been adopted throughout this series. I venture to say that it is a result which has not, certainly to my knowledge, hitherto been realised."

Professor Kovács, at Buda-Pesth, has recently published his stone operations. It is true that Sir H. Thompson is able to show larger numbers, but the statistical data of Professor Kovács give a result which is a little better than Sir H. Thompson's.

Sir H. Thompson, on 716 patients, performed altogether 812 operations, with 84 deaths (10·3 per cent.). His cases are divided in the following manner:

13 female patients:	10 lithotomies, with 1 death.	
	3 lithotrities	— — —
15 children:	12 lithotomies, with 1 death.	
	3 lithotrities	— — —
2 extractions.		

If these 30 cases are deducted, there remain 782 cases male adults.

110 lithotomies, with	39 deaths,	35 per cent.
672 lithotrities „	43 „	6·5 „
Total	82	10·5

At the First Surgical Clinic, Professor Kovács, on 233 patients, performed 248 operations, with 21 and 18 deaths respectively (8·5 per cent. and 7·25 per cent.). There were:

77 sectio perinealis lateralis, with	4 deaths.
2 sectio alta „	1
168 lithotrities „	16
1 extractio calculorum	—

But it must be remarked that among the cases treated by lithotrity there were 3 who died of intercurrent diseases—namely, one patient of 14 years died of apoplexia cerebelli, one patient of 67 years of cholera Asiatica, and one patient of 48 years of pneumonia. If these cases are deducted, as seems to be reasonable, the mortality becomes less.

The cases of Professor Kovács, classified in the same way as Sir H. Thompson's, give the following result:

13 female patients: all	13 lithotrities — —
115 children (namely, patients under 20 years).	
	70 lithotomies, with 2 deaths.
	75 lithotrities „ (4) 3 „
1 extractio calculorum	—
and 2 sectio alta „	1

(The two cases of sectio alta are cited separately, because Sir H. Thompson did not mention any cases of sectio alta amongst the lithotomies of male adult patients.)

These 131 cases deducted, there remain 117 male adults treated by lithotomy and lithotrity—namely:

7 lithotomies, with	2 deaths,	28·5 per cent.
110 lithotrities „	(12) 10 „	(10·9 per cent.) 9 per cent.
Total 117	(14) 12	(11·9 per cent.) 10·2 per cent.

Consequently, from this combination, it is clear: (1) In the female patients lithotrity was performed without a death. (2) In children—namely, patients under 20 years—lithotomy (sectio perinealis) was performed 70 times, with only 2 deaths; consequently, 1 death to 35, namely, 2·8 per cent. Lithotrity was performed 45 times, with 3 deaths, because, if the one that died of apoplexia cerebelli be omitted, the mortality is 6·6 per cent. (3) In the list of male adults—namely, patients over 20 years—there were 7 lithotomies, with 2 deaths, a result which, in spite of the small number of cases, is better than Sir H. Thompson's, the mortality being only 28·5 per cent. Of the 110 lithotrity cases, 10 died, omitting the two patients who died of intercurrent diseases, giving a mortality of 9 per cent.

Thus lithotomy and lithotrity were performed on 117 male adults, with 12 deaths—a mortality of 10·2 per cent.; consequently the result is about 0·3 per cent. better than Sir H. Thompson's result, which is 10·5 per cent.—*British Med. Journal, May* 12, 1888, *p.* 1005.

AFFECTIONS OF THE SKIN, ETC.

81.—ON THE RADICAL TREATMENT OF INDOLENT ULCERS BY MULTIPLE INCISIONS.

By Dr. F. Spaeth, Hospital St. Spiritus, Frankfort-on-Main.

The following method of treating indolent ulcers was devised by my chief, Dr. A. Harbordt. It has been applied with success for the last seven years in many private cases and in the wards of the hospital, and was described six years ago to the Medical Society of this city. It will be seen that it has claims to be considered a *radical* treatment, that is to say it tends to remove the cause of the morbid condition.

The chief reason of the small inclination to heal which these callous or indolent ulcers show, and of the great tendency to break down again which is observed in their cicatrices, is the defective nutrition, the inadequate blood-supply of the affected tissues. The margins of the ulcer consist of coarse cicatricial fibrous tissue with few blood-vessels, and its floor has an almost tendinous texture such as offers but little encouragement to cell-proliferation and regenerative growth. This fibrous and resistant induration is either a secondary result of the chronic irritation of the ulcer, as in varicose ulceration of the leg, or the floor of the ulcer is formed of tense non-vascular fascia, incapable of vigorous granulation and defying all the stimulating preparations which might be applied to it. Even Weber's lateral incisions and Nussbaum's circular incision prove powerless in such a case; while transplantation, after the methods of Reverdin and Thiersch, is out of the

question. Transplantation for success requires a healthily granulating surface, and here that is absent.

Our method is briefly as follows:—The entire ulcer is divided lengthwise by a deep incision extending far into the healthy tissue. Cross incisions are then made through the callous tissue into the healthy at intervals of about three-quarters of an inch. The incisions must go through not only the skin but the underlying fascia; the wounds must gape widely. The bleeding, often profuse, must be stopped with tampons; and the whole wound, which, it must be owned, has rather a slaughter-house look, is done up with iodoform dressings. When after eight to fourteen days the dressing is changed the difference in appearance is very marked. Healthy granulations are springing up in abundance from the gaping incisions, and soon cover the whole surface, reaching the level of the surrounding skin, from which the growth of new epidermis is seen to advance rapidly. At this stage, of course, when the loss of skin has been great, transplantation may be effected and will now be useful.

The multiple incisions must of course be postponed till the ulcer is no longer foul, all necrosed fragments being first removed; this is in order to avoid the risk of septic infection of the deeper parts.

The advantage of the method is obviously that highly-vascular healthy parts are enlisted in the healing process of granulation, and thus not only the wound but also the resulting cicatrix are under more favourable conditions. It might be expected, and facts confirm the expectation, that this cicatrix is far stronger and more resistant than the thin covering which may occasionally be obtained from scanty granulations, after the use perhaps of every means in the surgeon's armamentarium, and with great difficulty at that. Such thin cicatrices, of feeble vitality from the outset, give way on the slightest mechanical or chemical irritation—the chafing of clothes, a slight scratch, or an acrid excretion—and the weary "cure" has to be begun all over again.

The method has been found especially valuable in ulcers lying over joints, the cicatrices of which are themselves endangered by continual stretching and movement, and at the same time limit the mobility of the parts involved. These troubles are successfully overcome by this method, as in one of our cases in which a burn extended over the whole flexor aspect of the arm and forearm, and the treatment by incision had to be carried out in more than one stage; some repetition being necessary, probably because the first incisions were not extensive enough. The process of healing was protracted, but the ultimate result was extraordinarily successful, normal movement being restored except for very slight limiting of extension.

A further important advantage is that the duration of the

healing process is in almost every case shortened. In certain forms of painful indolent ulcer, the so-called *erethetic* type, which have a bad name for their painfulness and their obstinacy, repair and recovery become prompt, certain, and painless.

But one of the chief gains is certainly the improved quality of the cicatrix, and the diminished tendency to relapse, which every one who tries the method will be able to testify to.

It is of course obvious that the method has its limits of application: I may mention, for example, the diathetic difficulties introduced by the presence of syphilis, tuberculosis, scurvy, arterial atheroma, and so on. These require general treatment of an appropriate kind. But in the indolent ulcerations resulting from burns, severe contusions, varicose veins, and so on, the treatment has been of such signal service that we are encouraged to extend its application to other forms also.—*Practitioner, May* 1888, *p.* 332.

82.—ON XERODERMA PIGMENTOSUM, AND ITS RELATION TO MALIGNANT NEW GROWTHS OF SKIN.

By R. W. Taylor, M.D., Surg. to the Charity Hospital, New York.

[An exhaustive paper upon this exceedingly interesting and rare disorder is published by Dr. Taylor, in which the author gives the histories of seven cases which have come under his own observation, and appends a table of thirty-three others, thus making a total of forty cases. We abstract the following general observations upon the malady.]

In these seven cases all of the clinical features of the disease are clearly pourtrayed. The various lesions presented admit of sharp division for descriptive purposes. The disease—xeroderma pigmentosum—itself consists in the telangiectases, the pigmentations, and the atrophic changes, all of which have the most intimate pathological relations. Superadded to these polymorphous lesions there are sequelæ, or new-growths, which are at first of a benign nature and may thus remain, or they may degenerate into malignant growths. We shall first study the course of the disease itself, and then consider its resulting new-growths.

Of my seven cases the disease began, according to reliable testimony, in six at about the sixth or seventh month, and in one case at the fourteenth month. It is much to be regretted that several observers have failed to learn or to state the date of invasion. In twenty-six of the recorded cases, including my own, it is stated that it began in between the third month and the end of the first year in ten cases, and between the first and second year in fourteen cases.

The invasion of the disease is very constant, beginning about the face or under the eyes as a well-marked, smooth, superficial erythema, which is often regarded by the parents as the result of

sunburn. With the exception of this blemish, there is no impairment of health; indeed, the fact of the good health of most of the children is well attested. The erythematous patches extend, coalesce, and gradually creep over the face and neck, usually stopping at about the third rib by an abrupt margin. This condition of the face, neck, and trunk is of variable duration—from one to several months—during which the erythema may become less red. As this prodromal hyperæmia disappears, pigmented spots and red ones, or telangiectases, make their appearance, scattered irregularly over the affected regions. The pigmentations are at first of a light-brown, and may become of a blackish-brown, and even black colour. They vary in size from a pin's head to a lentil, and usually are not much, if at all, elevated, and of very irregular shapes. Scattered among them with great irregularity, but less numerous, are the red or telangiectasic spots, which are smaller, rather more salient, and of irregular outline. By a strong glass a congeries of capillaries can be made out. In most cases thorough pigmentation of the face and neck takes place in about six months. Upon the hands there is not such a marked prodromal erythema as upon the face, and in some cases there was no evidence of its presence. With the evolution of these lesions there are no marked local subjective symptoms. If a case is carefully studied, and frequently observed in its early years, it will be very often plain to the eye that the pigmented spots follow exactly upon the site of a pre-existing red spot, and the conclusion will be obvious that the red lesion was the forerunner, and that its pigmented fellow was the sequela. This I have seen to take place time and again. Very often pigmented spots appeared where the red one was only visible by means of a glass. The pathological relationship, therefore, between the red and pigmented spots is, to my mind, very clear. The further course of these two orders of lesions is well shown in the histories of the cases. They are erratic, they come and they go; they have periods of exacerbation and of remission, but their hold is never lost. If one disappears it is soon replaced by another, or by several. Thus, as the child grows older, its disfigurement becomes more or less rapidly worse, the disease relentlessly persisting. There is no record of a case in which anything like amelioration in its course was observed. A very few children escape with the disfiguring pigmentations, and perhaps slight atrophy; but even these are either attacked later on by severer lesions, or the milder ones remain indelible for life. The period of activity of the pigmented spots and telangiectases is greatest in the very early years and during childhood. After the fifteenth or sixteenth year they may appear and disappear, but rarely in such profusion as in the early years.

These two orders of lesions—the telangiectases and pigmentations—are peculiar to what we may call the stage of hypertrophy

of xeroderma pigmentosum. Disfiguring as they are, we find that in every case—in some in a mild and in others in a severe form—atrophic changes are soon superadded. In the majority of cases atrophy begins about the end of the first year of the existence of the morbid changes, but it may occur at any subsequent period. Its course is subject to marked exacerbations and remissions, and though it occurs on both sides of the body it is not usually symmetrical. In some cases it progresses and produces hideous deformities by reason of the size and situation of the patches; in others again, it is limited in extent and not strikingly observable. Upon the face this form of atrophy reduces the skin to the thinness of parchment, and destroys nearly all of the follicles. Such atrophic patches are usually traversed by minute lines, and frequently so transparent are they that the vessels can be seen beneath. Upon the hands and arms, and feet and legs, atrophy is not usually as well marked as upon the face, and it occurs mostly on parts subjected to tension, such as over the knuckles. If an atrophic patch of the skin of the face is attentively watched for a long period it will be seen that there is a constant evolution and involution of the telangiectasic spots, which are here sometimes followed by pigmentations. The atrophy of the skin takes place in proportion to the growth and atrophy of these minute vessels, and always where the atrophy of the skin is active close observation will show this rapid development of the red spots. This process seems to go on until all of the vessels of the part have undergone increase and decay; in fact, until no more are left, or until the skin is reduced to such a dense fibrous condition that they can luxuriate in it no longer. Due undoubtedly to the excessive vascularity and exposed position of the parts, atrophic changes are prone to occur upon the forehead, also on the scalp, about the eyes, nose, mouth, and ears. As a result, besides the disfigurement, ectropion occurs, with its train of bad symptoms, and incomplete stenosis of the nasal and oral apertures and deformities of the ears are produced. It is an interesting fact that when the atrophic process is at an end, no further pigmentation takes place, and a smooth, white, mother-of-pearl surface is left.

In almost all cases, particularly in those in which the pigmentations are deep and extensive, hypertrophic changes take place, very often coincidently with the atrophic processes. We find in the course of xeroderma pigmentosum epithelial new-growths. In their simplest and most rudimentary form these consist of plaques or spots, or thickened pigmented epidermal cells, representing keratosis senilis. This may be the full development of the hyperplastic process in a given case, or it may be the starting-point of larger growths. While the atrophic process is to be dreaded for its terrible disfigurements, these at first seemingly simple and harmless growths are often more terrible in their effects, since their

development produces the leaven upon which malignancy may later on be grafted. These are border-line lesions between benign and malignant new-formations. These keratosic patches may long remain as such, or they may be cast off and re-formed, and they may disappear. But about the face, particularly at the junction of the skin with the mucous membranes on the cheeks, chin, and ears, their tendency is to become larger. They soon form sessile or pedunculated, more or less elevated tumours, whose surface after the shedding of their pigmented epidermal covering may in general be termed fungating. At first they are of a deep-red, or purple-blue colour, soft and compressible, and remind one of erectile tumours. They frequently become pale, less vascular, and so brittle and friable that they fall off, leaving sometimes a surface which heals spontaneously, or an ulcer which may be very intractable, which may extend in depth and breadth, and frequently are surrounded by thickened and everted edges, which may become the seat of malignant degeneration.

Thus far in the hyperplastic processes of xeroderma pigmentosum we have found two principal forms of new-growth: First, the keratosic plaque or tumour; second, the large, and at first vascular, tumour. While the tendency to malignancy is often found in the first, it is very constant in the second form; yet, on the other hand, the latter tumours frequently wither and fall. Of the 40 cases of xeroderma pigmentosum 21 were males and 19 were females. Several members of a family were usually attacked, in some cases males alone, in others the females, and in still others both males and females.

Treatment.—Though every suitable external remedy has been tried, no case of xeroderma has ever been cured. Our measures, then, should be directed toward placing the skin at rest, and removing any possible source of irritation to the morbid parts. Especial care should be taken of the eyes, nose, mouth, and ears, since in these situations the disease expends its activity and malignancy. Details of this preventive treatment will suggest themselves as the cases present. Knowing, so well as we do, that these pigmented warts carry in their train such terrible consequences, they should be removed as soon as possible with the sharp spoon. In fact, all small and large tumours should be removed as soon as possible. There need be no fear of excessive hemorrhage, and if taken early one is warranted in expecting prompt cicatrization. Especially should this procedure be followed in small and commencing lesions about the eyes, nose, mouth, and ears. The sooner they are destroyed, the greater is the immunity of the patient to further growth, and, perhaps, malignant degeneration. All large tumours should be removed, and the subjacent tissues scraped thoroughly, if necessary, to the periosteum and bone.—*New York Medical Record, March* 10, 1888, *p.* 265.

83.—ON ERYTHEMA AND STAINING OF THE SKIN PRODUCED BY THE USE OF ARSENIC.

By James Stewart, M.D., McGill University, Montreal.

For one hundred years arsenic has been employed in various forms of chronic diseases of the skin. At the present time its use is by many limited to the treatment of chronic eczema, psoriasis and pemphigus. There are, however, many dermatologists who have no faith in it at all. We have direct proof of its marked influence over the nutrition of the skin. Ringer and Murrell noticed that in frogs poisoned by it the cuticle could be stripped off the whole body with the greatest readiness within a few hours of its administration. This condition was found by Nun to depend upon softening of the protoplasm of the columnar layer of cells in the epidermis, so that the cuticle remained attached to the epidermis only by a few protoplasmic threads.

Arsenic is eliminated by the skin to some extent, and there is no doubt that during this elimination there is an action set up which tends to restore the skin to its normal state. I believe, however, that the mainly beneficial action of this drug on the skin is not a remote local action, but is brought about indirectly by the influence of the arsenic on metabolism.

There is no necessity here to refer to the wonderful hæmatinic influence of this agent. This regenerating influence on the blood cannot be a direct one, as is the case with iron. It is an indirect action—a result of the influence of the agent on metabolism. This is what physicians meant when they used to speak of the alterative influence of arsenic.

Very recently Mr. Jonathan Hutchinson has attempted to prove that arsenic may, if continued for years, bring about a cancer of the skin. The cases which he narrated as sustaining this statement were few in number, and were far from conclusive in the evidence they presented of the truth of this assertion. It is, however, the bounden duty of every one who prescribes this agent to have in his mind the possibility of its being able to introduce epithelial cancer.

Arsenic frequently, however, gives rise to marked eruptions on the skin, and which may prove very troublesome unless the cause is quickly recognised. It is surprising how quickly some of these effects are brought about.

Three years ago I prescribed a mixture of Fowler's solution three times daily for a powerfully-built man who was at the time suffering from a very profound anæmia. After the sixth dose he felt feverish, and noticed slight swelling and redness on his hands and forearms. The redness of the skin spread rapidly and soon involved the entire body except the face. On closely examining the reddened skin, it was found covered with countless papules about the

size of millet seeds. There was great œdematous infiltration of the forearms, the integument of which had a dark colour owing to the venous return being interfered with by the copious transudation into the subcutaneous cellular tissue. This was a case of erythema multiforme, or general erythema, set up by arsenic during its elimination through the skin.

At the present time I have a man attending my out-door clinic at the General Hospital who is suffering from pseudo-angina pectoris. Arsenic has been prescribed now on several occasions, and its action is invariably followed by a diffuse erythema confined to the face, which quickly disappears when the drug is stopped. A curious symptom, too, is the wart-like excrescences which form on the dorsal surface of the fingers and hands. This quickly disappears on his ceasing to take the arsenical mixture. It appears to me to differ from the erythematous affection of his face only in affecting the deeper layer of the skin and in being localised. In both cases there is desquamation, in the case of the erythema, of the superficial layers, and in the case of the wart-like excresences, of the deep layers of the skin as well.

Another very peculiar action of arsenic is the production of a brown staining of the skin. I have had an epileptic under treatment now for two years with bromide of potassium. When he first commenced the use of the bromide it produced a very disfiguring acne; by combining it, however, with Fowler's solution this was in a great measure prevented. He, however, had not been taking the arsenic for any length of time before there appeared a brown staining of the skin, which was general, but more marked on the face and hands than elsewhere. The boy's mother was in a state of great alarm lest her child should turn into a "nigger." At the time I was not acquainted with the fact that arsenic may give rise to staining of the skin. On discontinuing the arsenic the staining slowly disappeared.

Arsenical staining is not permanent. It differs, therefore, from silver staining, which is permanent. The latter is due to the actual deposition of the metal in the tissues. The staining from arsenic, on the other hand, is simply pigmentary, and always disappears after the drug is given up.—*Canada Med. and Surg. Journal, April* 1888, *p.* 534.

84.—ON THE TREATMENT OF CARBUNCLES AND BOILS.

By Sir Peter Eade, M.D., F.R.C.P., Senior Physician to the Norfolk and Norwich Hospital.

The very valuable papers by Mr. Page and Mr. Rushton Parker recently published aptly recall attention to the subject of the local treatment of carbuncles as well as boils, and I think yet a few more words may well be said on this matter. Mr. Page

(*Retrospect*, vol. xcvii, p. 330) refers chiefly to the treatment of carbuncle in its advanced stages, and especially to the method of then treating it by incision and scraping away as far as possible the sloughing and diseased mass which gradually forms in the course of this disease. It is doubtless in these later stages that this method of procedure by abrasion or scraping appears most applicable, because it is then that the soft, boggy material exists in considerable quantity, and the size of the peculiar "core" or slough is then such as to make its removal desirable for every reason. In all three of Mr. Page's cases the carbuncle had reached a very forward stage, the diameters of the swellings being four, five, and eight inches respectively, and in all the disease having existed for from two to three weeks. The results appear to have been in all of them highly satisfactory. Mr. Parker's cases carry these views as to the desirability of surgical interference still further, and press upon consideration the question of always treating carbuncles and boils at all their stages by removal or destruction.

These views are, of course, in direct opposition to the opinion expressed by Sir J. Paget (see *Retrospect*, vol. lix, pp. 264-271) as to the propriety of non-interference in these cases, but they strongly confirm the recommendations given by the late Mr. James Startin (British Medical Journal, vol. ii, 1866) in a most practical paper on this subject.

Many years ago I devoted considerable attention to these diseases, and I published several papers (*Retrospect*, vol. lxi, p. 217; vol. lxix, p. 264; vol. lxxiv, p. 270) advocating the free use of caustics for their destruction. Then, as now, all evidence went to show that a carbuncle (like a boil) was mainly a local disease, and that its career could be cut short at almost any stage, from its earliest one of a pimple with an open apex, through that of a solid papule, to the fully-formed condition of a pulpy mass with its characteristic cribriform and discharging openings. The several cases so recently published show once more what are the true theoretical principles on which we should act, and also how effective is the knife or the spoon in removing the disease and relieving the patient. I would urge that they forcibly inculcate the duty of considering in every case whether prompt surgical interference is not called for, not only when the disease is large and fully formed, but also when smaller, yet slowly but surely advancing in its well-known course, and is certainly involving the patient in a prolonged illness attended with much pain and general suffering, as well as the possibility of some danger to life. That the disease is not only local, but is due to the presence (or products) of a micrococcus, is now practically established (see Mr. Watson Cheyne's Lectures, 1888, &c.), and there is now little doubt that the multiplication and spread of a mass of germ-growth (? staphy-

lococcus pyogenes aureus) from the centre or original pimple in a circular form outwards and outwards is the essence of the disease.

Like anthrax and malignant boils generally, carbuncle is in its early stages undoubtedly curable through local destruction or removal. But it seems that a necessity for increased strength of the destructive agent steadily increases as the period of its existence is prolonged. At first the pimple may be almost certainly destroyed by continuous soaking with a solution of boracic acid, salicylic acid, or other mild antiseptic. At a little later period it may usually be aborted by inserting freely into its central or cribriform openings some strong solution of carbolic acid in water or glycerine, or by adopting one or other of the methods suggested by Mr. Startin. But when it has become large and solid, and much surrounding tissue has been infiltrated with the growing germs and their products, the disease appears to be chiefly susceptible of surgical treatment by partial or entire excision, or incision with scraping away of the boggy material, as recommended and practised by Mr. Page. In cases where this severer form of treatment is either declined or thought inexpedient, there is then nothing for it but such careful expectant treatment as Sir J Paget recommends; although my own experience shows that even in the later stages the free application of oil or glycerine of carbolic acid, alone or upon a poultice, or inserted into the openings has a marked effect in penetrating and rapidly improving the condition of the sloughy mass, and apparently in hastening its separation.

None of the usual local caustic applications are otherwise than painful, for the spreading growth is always excessively tender, but nevertheless, in many cases, it is well worth while to submit to the pain of the application in the early stages, rather than incur the risk of one, two, or three months' severe and, perhaps, dangerous illness. But in some other cases it is almost imperative to try and abort or destroy the nascent growth, as, for example, in carbuncle commencing upon the face or upper lip, which is, perhaps, its severest form. A few years ago it happened that a well-known surgeon in this county was attacked with a carbuncle of the lip, which was treated in the ordinary way by poultices and the other usual methods of soothing and expectant treatment. This gentleman was severely ill, and in considerable danger of his life for several weeks. He was compelled to leave his home and to relinquish practice for several months; and when he returned, the whole side of his face was deformed and distorted from the contraction of cicatricial tissue, and his face and chin were reddened and disfigured for life.

Very shortly after this I was asked to see another medical man in whom the same form of the disease had begun, and was rapidly spreading. It began at the right side of the upper lip, and had extended nearly to the middle line, and the lip was swollen, tense,

and very painful, whilst several small openings had already formed. Remembering the other recent and unfortunate case, which I quoted to the patient, I persuaded him to allow me freely and frequently to insert a strong carbolic glycerine solution into every part of the swelling where a hole permitted it. The process was disagreeable and somewhat painful, yet the good result obtained encouraged us to persevere, and in three or four days we had the satisfaction of finding that the increase of the growth was quite stopped, that the tension and swelling were steadily subsiding, whilst bright red granulations (such as carbolic acid will often produce in the base of a sloughing tissue) began to show themselves. In two or three weeks from the commencement of the attack this gentleman was absolutely well, quite free from deformity and almost free from any cicatrix, the result exhibiting a marked and gratifying contrast to the case of his professional brother.

Boils are not identical with carbuncles, for they have a different size and aspect, a different life-history, and an entirely different duration; but they are evidently closely akin, alike local and "fungoid," and the theory of their treatment must be the same, however modified in practice by their lesser importance. And they are markedly contagious, for there is strong reason to believe that what is commonly called a "crop of boils," and is often attributed to some blood-fault, is essentially the result of auto-inoculation, and that each successive boil is due to the implantation in the skin of fresh seeds or germs from the preceding one. It is well known that a nascent boil may be easily aborted by a point of some strong caustic. The same result may be more easily and pleasantly obtained (as in the earliest stages of carbuncle) by soaking the commencing pimple frequently with a solution of salicylic acid; and I had the satisfaction a short time since of thus entirely stopping the progress of "a crop of boils" in both husband and wife, who had clearly infected each other, by the adoption of this very simple and painless process.

The whole tenor of our increasing knowledge of both carbuncles and boils appears to me strongly to point not only to the certainty of their local and parasitic nature, but also to the desirability of their destruction and removal at the earliest stage at which they come under our observation.—*Brit. Med. Journal, May* 19, *p.* 1045.

85.—ON OINTMENT BASES.

By Henry W. Stelwagon, M.D., Philadelphia.

There is scarcely a disease of the skin in which at one time or another in the course of treatment oleaginous applications are not found necessary. Certain diseases, it is true, may be occasionally treated satisfactorily by means of lotions, but such cases are comparatively rare. It goes without saying, therefore, that an excipient

for an ointment mass is of importance in cutaneous therapeutics; and this need is, in fact, recognised by enterprising chemists and experimenters, as made known by the many new bases that have been placed upon the market in the past several years. Thus may be cited such new preparations as lanolin, oleic acid, mollin, glycerite of starch, and the petroleum products known commercially as vaseline, cosmoline, petrolina, albolene, petrolatum, &c. To complete the list of the ointment bases now in use it is merely necessary to add the names of lard, suet, and cold cream, and diachylon ointment. During the past ten or more years clinical opportunities as to special practice have made me more or less familiar with the advantages and shortcomings of the various bases; and I have here jotted down briefly, and possibly somewhat disjointedly, my observations.

It requires but little experience to teach one that the best therapeutic results are not attainable by the exclusive use of any one of the several bases. Different diseases and different stages of the same disease frequently require changes in the unguent. Thus, for instance, in some cases a soft ointment—one that may be easily and readily rubbed into the skin—is called for, as in chronic scaly eczema, while in others the ointment is to be applied merely as a protective, and therefore a much stiffer mass is required,—one in which penetrative power is not so important. Temperature also, varying as it does so considerably at different periods of the year, is a factor in the selection or composition of the ointment. In winter either lard or cosmoline may, if intended for exposed parts, be satisfactorily employed as a protective,—that is, applied in the manner of a plaster. To advise such in the heated season, however, would render such a method of application impossible. Another essential consideration also in prescribing is the penetrative power of the base, as already referred to. This property is extremely desirable in some cases, and a positive disadvantage in others. In acute diseases, as a rule, protection alone is desired, and in such an ointment of great penetrative power is not only without direct result, but is prejudicial. On the other hand, to prescribe a base with practically no power of permeating the skin in such diseases as psoriasis, chronic thickened patches of eczema, would in a great measure invalidate the therapeutic effect. Another factor also to be considered is the consistence of the medicament to be incorporated. To prescribe such liquid preparations as oil of cade, carbolic acid, and the like, to be added to lard, cosmoline, or cold cream, would, if the lipuid were present even in moderate quantity, make a mass too soft for comfortable keeping and use. Even in winter, if a liquid is ordered in a moderate percentage with a soft base, the ointment is unsatisfactory. On the other hand, if a large proportion of pulverulent medicament, as, for instance, starch or oxide of zinc, is to be

incorporated, a soft excipient becomes a necessity, otherwise the resulting ointment would be too stiff for use. Another point of importance in the selection of bases is their tendency to rancidity. This tendency, as is well known, is always greatest in the warm season, and at such times, therefore, must be considered in such prescriptions. In winter the tendency is slightest, and its consideration is not relatively of so much import. It is to be remembered also that rancidity is to a certain degree retarded by the addition of a few minims of balsam of Peru, benzoin, salicylic acid, and other substances, without, except in acute and markedly inflammatory diseases, compromising the therapeutic result. Occasionally, in the applications to the skin, neither protection nor penetration influences the selection of a base, but the main effect desired is a detergent or dissolving one.

With these cursory general observations the individual properties of the various bases may next be referred to:

Lard.—This base possesses penetrating and softening powers scarcely, if at all, inferior to any yet introduced; it is white, and therefore, in an ointment sense, clean; it is found to agree with most skins; in cold seasons its consistence is such that it may be used not only by inunction, but, if it is to be applied to exposed parts, also as a protective; it allows the addition of varying quantities, up to a fair proportion, of pulverulent substances, without becoming too stiff for use. Its disadvantages are that it tends rapidly to rancidity, and, as with all unguents, except cooling ointments,—those containing water,—is not acceptable to certain skins; it does not alone permit, without becoming too soft for satisfactory use, the incorporation of liquid medicaments; its low melting-point makes it unfit for summer use, unless mixed or stiffened with other substances.

Cold Cream (Ungt. Aquæ Rosæ).—This base, if properly made, is cooling, and therefore acceptable to almost all skins; it has, however, very little penetrative power, and tends to rancidity. In its other properties—consistence, &c.—it practically has the same advantages and disadvantages as lard.

Suet.—Unirritating and softening, admitting of the incorporation of a large proportion of liquid without becoming too soft; its disadvantages are that it is alone too stiff for use, and tends to rancidity.

Vaseline and Cosmoline.—No tendency to become rancid; acceptable to most skins. Disadvantages: very little penetrative power, melting-point about the same as lard, and hence the same disadvantages in regard to consistence, &c.; occasionally irritating; stains the linen a slight brownish tinge. These preparations may be procured, however, as white ointments, but as such they are not so innocuous as the unbleached products.

Petrolatum.—Is essentially the same as the preceding substances,

vaseline and cosmoline—but, as recommended by the Pharmacopœia, the melting-point is higher, varying, in fact, from 105° to 125°; this is regulated by the admixture of paraffin. The advantage over the foregoing is that of greater consistence, and, by ordering the preparation at different melting-points, according to the season and to the consistence of the medicament to be added, it becomes a valuable base.

Lanolin.—It is said to possess remarkable penetrating properties, and, according to my experience, this may be measurably admitted. Its superiority in this respect to lard, however, is still open to question. It admits of the admixture of an equal percentage of water, and may then be used as a cooling ointment; it may be inferred also that such remedies as oil of cade and other liquids may be incorporated without the resulting ointment becoming too soft for use. Its disadvantages are, that it is too stiff to be used alone; the sheepy odour is not entirely absent; it tends, although slowly, to change, and it is occasionally found to be irritating.

Unguentum Diachyli.—Is soothing and unirritating, and about the consistence of lard. Its great disadvantage is its unstable character, tending rapidly to become rancid, and also becoming tough and stringy after a short time. Its preparation is somewhat difficult and tedious, and hence that found in the different shops is apt to vary considerably.

Mollin.—Is about the consistence of lard, and admits of being thoroughly rubbed into the skin, possessing a moderate amount of penetrative power. Inasmuch as it is a soapy base, its disadvantages for general ointment purposes are evident. This property, however, is occasionally desirable, as, for instance, as a base for the incorporation of such drugs as sulphur, styrax, tar, &c., in the treatment of scabies, sluggish acne cases, &c.

Sapo Viridis.—This as an ointment base is rarely employed, but in exceptional instances it is for this purpose exceedingly valuable. The advantage of this preparation is its strong detersive property, and it may be even caustic. Its use, therefore, is within narrow limits only.

In endeavouring to utilize the memoranda above noted, which really are in themselves therapeutic indications, the object of the application must be kept in view. Thus, if a penetrating ointment base is desired, so that the remedy may be brought in intimate association with the skin, as often called for in such diseases as acne, psoriasis, certain forms of eczema, alopecia, &c., then the base is to be made up of lard, suet, or lanolin, or a mixture of two or more of these; the selection depending also upon the consistence of the medicament to be incorporated. If protection and a moderate amount of penetration and softening are desired, as often in subacute conditions, then cold cream, or any of the above, mixed with petrolatum, may be prescribed. On the other hand,

if simple protection is aimed at, as in zoster, pemphigoid diseases, burns, &c., then petrolatum, unguentum diachyli, alone or mixed with cold cream or lard, may be employed. If it is desired to emphasise the action of the remedy incorporated, and at the same time employ a base active in itself, as in thickened eczematous patches, in callosities, sluggish forms of acne, and the like, then recourse may be had to mollin, and sapo viridis. Finally, in regard to consistence and rancidity; the former may be regulated by the proper admixture of two or more bases, or the addition of wax, spermaceti, or similar substances; the latter may be measurably obviated by the addition of a minute amount of benzoic acid, salicylic acid, or balsam of Peru.—*Therapeutic Gazette, Aug.* 1888, *p.* 520.

SYPHILITIC DISEASES.

86.—ON THE TREATMENT OF SYPHILIS.

By J. Astley Bloxam, F.R.C.S., Surgeon to the Charing Cross and Lock Hospitals, London.

For my own part, and it is the opinion of those connected with me at the Lock Hospital, the only remedy which has a specific and decided action upon the course of the disease is *mercury*. I I know of no one at the present day who attempts to effectually treat syphilis without the use of that drug. And I would say, as mercury is the most powerful of all germicides, we could not rely upon a safer remedy with which to attack a poison which in all probability originates in bacilli. The efficacy of mercury was fully recognised by the older writers, but unfortunately they pushed the remedy beyond the required limits, and thus added a mercurial to the syphilitic poisoning.

First, with regard to local treatment. It has been proposed by some to remove the sore either by excision or destruction by caustic, or acids, together with removal of neighbouring glands. To my mind such a treatment is impracticable and must prove of no avail, so we may dismiss such a line of treatment from our consideration. Cleanliness is the first point to be insisted upon. Strange as it may seem, in practice this is even a difficulty. Should the sore be situated on the external portions of the male organ nothing is better, or more comfortable and cleanly, than the application of a small portion of the emplastrum hydrargyri (B.P.), spread on wash-leather, warmed and cut to the size of the sore; it also has a protective action. But in either sex, when the sore is found in moist situations, nothing answers better than dusting them with calomel or oxide of zinc in equal proportions. Especially in condylomata do we see this by its rapidly causing them to dry up and disappear. Oxide of zinc is better than starch, as it

does not decompose. Attention should also be directed, especially in the female, to keeping the parts as dry as possible by frequent changes of linen, or by the use of the sanitary bandage. Should the sores be painful, the application of a 15 per cent. solution of cocaine at once gives relief. Under all circumstances, lotions, ointments, poultices, and fomentations are, in my opinion, better avoided. The use of a warm hip-bath night and morning will add considerably to the patient's comfort, but special directions must be given as to drying the parts thoroughly afterwards.

Constitutional treatment may be divided into general and specific. The general treatment consists in attention to ordinary hygienic principles—such as plenty of fresh air, warm clothing, moderate exercise, the avoidance of all chills or rapid changes of temperature. Diet should be light and nutritious, but mainly nitrogenous. With regard to stimulants, they should be avoided, for alcohol in any form adds largely to the activity of the syphilitic virus. So deeply impressed am I with this that it is a common expression of mine to all patients that, "if they want to keep their syphilis, they have only to drink sufficient alcohol, and they can keep it as long as they please." In fact, to my mind no treatment of syphilis is of any avail to the drunkard. In all cases in which I have seen fatal or disastrous results alcohol has been at the root of the mischief. Special directions must be given as to the necessity of keeping early hours during the whole course of the disease, as the nervous system is so liable to be attacked at any time. The specific treatment of syphilis by mercury can be carried out by administration through the alimentary canal or the skin, or directly injected into the tissues of the body. When administered through the alimentary canal, it is best given in the form of two grains of mercury pill and a quarter of a grain of opium night or morning, or one grain of hydrarg. c. creta with one grain of quiniæ sulph. or two grains of ferrum redact., three times a day. Some prefes the green iodide of mercury given in the form of a pill, others a mixture composed of liq. hydrarg. perchlor. and iodide of potassium. Against these, however, I have a distinct objection, as they are liable to rapid decomposition, producing purging and irritation or rapid salivation. When administered through the skin it can be done, as you are aware, by the inunction of ung. hydrarg. fort., or by the oleate of mercury, or by the use of the calomel bath. The only practical point to be observed in the inunction is that it be not too frequently applied to one spot, otherwise it produces irritation. Against all the above methods it may be stated that a considerable time is occupied before any effect of the drug is noticed, as their action is most uncertain, and in addition sudden salivation may ensue. I would mention that by these methods we have no power of saying what amount of mercury is absorbed at any time during the course of the disease, and to my mind it is a

very crude and imperfect manner of administering such a powerful poison as mercury. Have we, then, discovered a better plan? Yes. By administering mercury directly into the tissues of the body I believe we have done so. Several preparations have been suggested for this purpose, and until recently I obtained the best results with an intra-muscular injection of a solution of perchloride of mercury (eight grains to one ounce of distilled water). I injected twenty drops of this solution once a week into the gluteal region, with remarkably good results. Out of 1,924 injections, there has been only *one* case of abscess, and that resulted from the injection being improperly performed, as the fluid was injected into the subcutaneous tissue. Even in this case the local irritation was slight, and it gave rise to no other symptoms. The patient was injected twenty-six times afterwards, with no ill effects. Two points are to be observed with the use of the solution: first, that the pain at the time is sometimes severe and may continue for two or three days; and, secondly, if bleeding takes place at the seat of puncture, or in those of a hemorrhagic tendency, indurated nodules form, which remain for two or three weeks. Satisfactory as were the results obtained by the solution of perchloride of mercury, I have more recently obtained even better results with a solution of sal alembroth—a double chloride of mercury and ammonium. It is made by dissolving thirty-two grains of mercuric chloride and sixteen grains of pure chloride of ammonium in distilled water sufficient to yield two fluid ounces of product. Ten minims of this solution will equal one-third of a grain of mercuric chloride. It is an absolutely permanent solution, not liable to fungoid growth or other decomposition, and without precipitation. So far I have given over 600 injections with this solution, using ten minims for a dose, and no untoward effect has been observed; the pain is comparatively slight, the slightest induration following, and the effect most satisfactory, as, after two injections equalling two-thirds of a grain of mercuric chloride, the physiological action of the drug was produced, and could be maintained by an injection once a week, whilst the symptoms of the disease, both local and constitutional, underwent most rapid and favourable change. Whilst prosecuting my experiments in relation to the injection of mercury, at the request of my confrères on the Continent, I tried calomel and glycerine, and also calomel with pure petroleum, according to their directions. In both cases the results were most unsatisfactory, as abscesses formed, accompanied with great pain and irritation. It is right to remark that in both instances, although the amount of calomel injected was about one grain and a half, decided mercurialism followed. Since I commenced injection in 1884 I have been accustomed to inject one-third of a grain of perchloride of mercury, or the equivalent of sal alembroth, once a week. I have found after doing so all primary lesions healed,

and for the most part signs of mercurialism have been present. I have then injected once a fortnight until all glandular, throat, and other sequelæ have disappeared; this has generally occupied another eight or ten weeks. Then the injections have been continued on an average of once a month, some tonic being given in the meantime. Occasionally towards the end of the treatment a few doses of the iodide of potassium have been given, and the patients have been kept under a mild but continuous course of mercury, on an average from eighteen to twenty-three months. The average quantity of mercury injected has been from six to eight grains during the whole course of the treatment. I do not believe that iodide of potassium has any curative effect on syphilis. I look upon it only as a whitewash. It is useful, however, in profuse suppuration and old tertiary conditions. Yet unless the patient is subsequently placed under the influence of mercury the symptoms will invariably recur. Here I may remark that I have frequently observed, on strict examination in severe cases of nerve lesion occurring at a late period of the disease, that the primary condition has been followed with but slight sequelæ, and the patient has received but a slight course of mercurial treatment.

I can only briefly refer to the treatment I adopt in hereditary cases. I find the inunction of the mercurial ointment, steadily continued, is the most reliable in early cases, bearing in mind the important fact that it is almost impossible to salivate a child.—*Lancet, May* 5, 1888, *p.* 865.

AFFECTIONS OF THE EYE AND EAR.

87.—ON THE EXTRACTION OF IMMATURE CATARACT.

By Charles Higgens, F.R.C.S., Ophthalmic Surgeon to Guy's Hospital, London.

The treatment of immature nuclear cataract has long been, and still is, one of the vexed questions of ophthalmic surgery. Extraction by ordinary methods has not been followed by a good percentage of success on account of the transparent cortex inevitably left behind, which afterwards becomes opaque and blocks the pupil, causes dense capsular obstruction, or sets up severe iritis, leading to closure of the pupil. "Ripening" the cataract by puncturing the lens with a needle, and extracting it when it has become opaque, has been followed by no better results. Washing out the capsule is still under trial, and in my hands has not been very successful. The method of treatment about to be described has given very fairly good results; the cases reported are the first half-dozen I have done, and the results, although not brilliant, are encouraging. The procedure has for its object the removal

of the lens in its capsule. The details of the operation are not quite the same in all the six cases, but I am of opinion that it is best to make the section downwards, and to operate under profound anæsthesia, as follows: A fair-sized iridectomy should be performed downwards, as a preliminary, some weeks or months before extracting the cataract. I recommend preliminary iredectomy because I believe that the risk of iritis after extraction is much less than if the iris is freshly wounded at the time of extraction. I do it downwards, because the manipulation with the vectis in removal of the cataract is so much more simple when the section is made downwards than when it is made upwards; and also if the nucleus of the lens is opaque, vision may be improved for a time by an artificial pupil in this direction. I remove the lens in its capsule through a small flap section made downwards; the instrument employed for its extraction is the small flexible wire loop, or vectis, designed by Dr. C. B. Taylor of Nottingham. One point comes out clearly in the cases reported—i.e., that the loss of even a considerable quantity of vitreous does not of necessity preclude a fairly successful result. In five out of the six cases vitreous was lost; in one (Case 5) the amount was large. I am of opinion that loss of vitreous does not materially affect the ultimate result of an extraction, provided the whole of the cataract is got away; but if pieces of lens are left mixed up with vitreous upon or behind the iris, severe and very probably destructive iritis will be set up. Case 3, however, would appear to be a contradiction to this view. It should be noticed, in estimating the results obtained in these cases, that in three the eyes were probably unsound; in two (Cases 2 and 3) the cataract was associated with high degrees of myopia; and one (Case 6) was an instance of posterior polar cataract—a form of opacity often associated with disease in the deeper parts of the globe.

Case 1.—John O., aged 63. Both eyes: immature nuclear cataract.—Feb. 14, 1887: Left eye: extraction through small flap downwards; iridectomy; lens removed with loop; some vitreous lost. Cocaine was employed.—March 21: Vision $\frac{6}{12}$ with + 13 D, and Jaeger 4 with + 16 D.

Case 2.—Martha B., aged 68. Both eyes: immature nuclear cataract; high degree of myopia; considerable choroid changes.—March 21, 1887: Iridectomy downwards performed in the right eye five months previously; extraction with loop through small flap downwards; no vitreous lost. Under anæsthetic.—March 24: Vision $\frac{6}{24}$, and Jaeger 10 without any glass.

Case 3.—Adelaide S., aged 58. Both eyes: immature nuclear cataract; high degree of myopia.—April 25, 1887: Iridectomy upwards performed ten weeks previously; small flap upwards; lens removed with loop; capsule ruptured during removal; some soft matter left behind; vitreous lost. Under cocaine. A dense cap-

sular obstruction formed, which required three needle operations.—Feb. 20, 1888: Vision $\frac{6}{60}$ with + 5 D, and Jaeger 12 with + 6 D.

Case 4.—Daniel S., aged 60. Both eyes: immature nuclear cataract.—May 2nd, 1887: Iridectomy downwards performed in right eye fourteen days previously; lens removed with loop through small flap section downwards; vitreous lost. Under cocaine.—June 3: Vision $\frac{6}{24}$ with + 10 D, and Jaeger 12 with + 12 D.

Case 5.—John C., aged 58. Both eyes: immature nuclear cataract.—June 20, 1887: Iridectomy in left eye some months previously; extraction through small flap downwards. The patient was imperfectly anæsthetised, strained much, and the lens was squeezed out in its capsule with a large quantity of vitreous; nevertheless, all went on well.—Oct. 10: Vision $\frac{6}{24}$ with + 11 D, and Jaeger 10 with + 16 D.

Case 6.—Richard R., aged 55. Both eyes: posterior polar cataract.—Oct. 17, 1887: Iridectomy downwards performed in left eye some years ago: extraction with loop through small flap section downwards; vitreous lost. Under anæsthetic.—Nov. 14: Vision $\frac{6}{36}$ with + 12 D, and Jaeger 6 with + 16 D.—*Lancet, May* 12, 1888, *p.* 915.

88.—ON THE TRUE VALUE OF THE ARTIFICIAL TYMPANIC MEMBRANE.

By W. Laidlow Purves, M.D., Aural Surg., Guy's Hospital.

In considering the true value of the artificial drumhead, it should be remembered that the ear, the organ of tune, is suited to receive transverse sonorous vibrations, and that what is required of the ear is: (1) An appreciation of noises. (2) The determination of direction. (3) The determination of intensity. (4) The recognition of a combination of impulses.

We need not, at present, regard the artificial membrane in relation to the two requirements first mentioned. The last two requirements are those which come practically before the surgeon, and they include the others to a great extent. Our assistance is not asked by a patient to enable him to hear the tick of a watch, or the sound of a fork, but to restore him, as far as may be, to conversational intercourse with his fellow-men.

This conversational intercourse is interfered with by any changes which damage the mechanism regulating the intensity, the analysis of the several impressions, the conveyance of these to the brain, or the sensations thereby produced. It is with the first cause—changes in the mechanism regulating the intensity—that we have to deal. These are found in abnormal alterations in the reflection, resonance, conduction, and tension, of the external and middle ears, and almost exclusively on those in the latter organ.

The changes in the meatus itself, excluding those in the membrana tympani, in which the artificial drumhead might be of service, are somewhat obscure, but cases have come before me in which the benefit effected seemed to be in the size and position of a piece of moistened cotton wadding in the meatus. I shall be happy to learn if any such cases have been seen by any member present, as I have not observed such cases mentioned in the literature of the subject. The so-called, but in such cases miscalled, artificial drumhead is made in the form of a cylinder, and placed on the floor of the meatus, but so that no part of it reaches the natural membrane, or its position in the normal state. If we remember that the vibrations collected by the auricle, and those which strike the meatal wall perpendicularly are reflected frequently in the meatus; and these reflections are influenced by changes in the regularity of the surface, both in the cartilaginous and osseous portions of that canal; that these reflected vibrations then strike a membrane standing at an angle of about 140° to the canal causing those reflections; and that this canal acts as a resonatorto certain tones, strengthening high tones, and deadening low ones, we must admit that the placing of a body which changes the calibre of the canal irregularly may alter its capacity for exercising these functions, and, when abnormal changes are present, may assist in restoring that capacity. It may be that in cases of abnormal change in the membrana tympani itself, without meatal changes, this meatal pad may reflect or concentrate vibrations to a part of the tympanum better fitted to receive and convey them to the inner ear.

When we turn to the tympanic membrane itself, and the cavity of which it forms the outer wall, and note its irregularity in stiffness, its irregularity in density, in tension, in movement, and in curvature, the changes which may occur by the placing of an artificial drumhead against a tympanic one in which abnormalities are present are innumerable. When we pass to the cavity with its muscles, joints, ligaments, linings, membranes, and peculiar nervous supply, and then remember that any changes which may arise either in the membrana tympani or in the cavity, must cause anomalies in their relations to each other, is it a matter of astonishment that there has been difficulty in determining the exact mode of action of the artificial drumhead?

It may be that it acts in the many ways alleged, as by restoring the screen between the meatus and cavity, and so increasing the resonant power of the latter, by acting as a medium between the air and the ossicles, or by restoring a lost curvature and so increasing the action of the vibrations on the ossicles. It may load the membrane so as to prevent after-vibrations or enable the membrane to accommodate itself to vibrations of every degree of rapidity. It may and does act as a protector, as a vehicle for medicaments, as

an absorbent, as a moistener; but it is pre-eminently as a tension transposer, and an assistant to the intratympanic muscles that it effects the changes which delight both patient and practitioner.

When accommodative loss has taken place in the ear from anomalies of tension, as (1) by a lengthened closure of the Eustachian tube, causing rarefaction of the tympanic air, and thereby an increased tension of the membrana tympani and ossicula, and so causing a hindrance to the conduction of sound; (2) by thinning of the membrane by atrophy or cicatrices, or thickening of the same by deposits, and so causing a disturbance between the tension of the membrane and chain; (3) by ossicular changes, especially at the joints or articulating surfaces, interfering with easy conduction—then the artificial drumhead may be applied with a prospect of success.

We are, however, unable to say before trial in what position our assistant is to be employed, and this is only determinable by trial. We may conjecture by observing the changes present in the drumhead by means of a magnifying lens, and the variations in the tension thereof by means of a Siegel's speculum, whether an increase in the tension or a relaxation of the ossicles is most likely to benefit; but I know of no method by which you can predict an improvement to conversational hearing before trial.

Should the loss of accommodation have arisen from a general cause, such as anæmia, nervous prostration, or other general impairment of vitality, we cannot look for improvement by a local application of this kind; but we are able to differentiate the loss in the two different classes of cases, by the presence in the class in which the artificial drumhead is of benefit, of the objective symptoms above mentioned, and in the other by the general condition or the presence of paretic conditions in the eye, pharynx, or larynx. There may be a combination of causes present, each requiring the attention of the surgeon.

We have still to deplore the want of a good standard for accurately determining the degree of loss for conversational hearing, which is the province in which the artificial drumhead achieves its greatest victories—victories which, in suitable cases, are unsurpassed in any domain in surgery. I have heard it averred in public discussion by a well-known surgeon in London that the membrana tympani acted as a protection or covering to the cavity, and nothing more. I have read the report of a scientific meeting in which it was stated that the artificial drumhead was "a pretty scientific toy, and occasionally very satisfactory in its effects." As well may we consider the transparent refracting media of the eye merely coverings and protectors of the retina, and the spectacle lens "a pretty scientific toy!" How such enunciations could be calmly delivered by men practising aural surgery, and who must surely have seen the delight of the patient to whose ear an artificial

membrane has been successfully applied, the eager inquiries for instruction in its use, and the satisfaction evinced after many months of easy hearing, free from that constant strain to listen which was causing nervous prostration, headache, and giddiness by the very effort, I cannot understand. I have heard the successful application of the artificial drumhead compared to the successful operation for cataract, but I would rather say that the artificial membrane does for the ear what the artificial lens does for the eye, performing the work which the muscles themselves cannot do without a strain, and placing the vibrations and undulations in the respective organs within the easy command of the muscles, so that those wonderfully minute variations necessary for conversational hearing may be effected with comfort—variations which are constantly being acted upon in our waking hours by the guardians of the gates of the two great senses.—*British Medical Journal, Sep.* 1, 1888, *p.* 478.

89.—TUBERCULAR SYPHILIDE OF THE AURICLE.

By Dr. Robert Barclay, St. Louis, Mo.

Dr. Robert Barclay gives an account of a tubercular syphilide of the auricle, becoming serpiginous, and attended with ulceration and sequestration of the cartilage of the concha, tragus, and canal. This was followed by membranous atresia and deafness, but relieved by an operation. The latter was as follows: First, an incision was made into what was supposed to be the seat of the normal meatus. This gave vent to retained sero-purulent matter, accompanied by cakes and flakes of pus, desquamated epithelium and other decomposed tissue. After cleansing and insufflation of boric acid and calendula, a tightly-rolled tampon of absorbent cotton was inserted. The next day the tampon was removed, and the discharge found to be diminishing. A scalpel then was used to widen the canal in a search for the membrana tympani, which was easily found, and seen to be spotted with granulations. The next day the discharge was observed to be further diminished, the opening, however, showed a tendency to contract. Boric acid powder was insufflated, and another cotton-wool tampon inserted. Hearing for watch $\frac{2}{48}$. Same conditions and treatment the next day; and for two days more. The opening showed less and less signs of contracting, but upon neglecting the treatment prescribed for him, another form of dilatation, viz., first, soft-rubber tubing, and then a section of a hard rubber canula, was used. This seemed to promise a cure, if his habits, which were intemperate, did not interfere with his proper attention to directions.—*American Journal of Medical Science, July* 1888, *p.* 90.

Midwifery

AND

THE DISEASES OF WOMEN, ETC.

90.—REMARKS ON THE ELECTRICAL TREATMENT OF DISEASES OF THE UTERUS.

By Sir T. Spencer Wells, Bart., F.R.C.S., Surgeon to the Queen's Household.

[The following remarks are taken from an Address read before the Brighton and Sussex Medico-Chirurgical Society.]

The labours of Apostoli have expanded and given a definiteness to our knowledge of the special power of galvanic currents in the treatment of uterine diseases, and of the mode of applying the currents in a way which I may thus resume.

In the first place, we have learned from him better to understand the double action of the uninterrupted, continuous, galvanic current. The one action is purely local, and coincident with the flow; the tissues immediately in contact with the pole which delivers it are decomposed; the bases and acids of the substances and fluids acted upon are set free, and, according to their nature, produce cauterisation of the surrounding parts, independent of any thermic influence. This effect is local, immediate, and visible. The second action is due to the interpolar passage of the current. It is a trophic action influencing the nerves, vessels, and lymphatics, followed by molecular changes, so as to modify the nutrition of the tissues through which the current goes, and varying according to the pole employed. The effect of the direct and of the secondary counter-current is durable, and, whatever may be our interpretation of it, it is remedially of far more importance than the mere galvano-chemical cauterisation.

Secondly, though the coagulating power of the current passing from the positive pole was known from the writings of Ciniselli and A. Tripier, we have had disclosed much more since as to the distinctive character of the action of the currents from the two opposite poles. It was with the positive current that Apostoli began his attack upon uterine fibroids, because of the more striking nature of the hemorrhagic symptoms, and it was the speedy relief of this grave trouble by the production of a hard, dry eschar, and resisting cicatrix, which encouraged him to persevere. The eschar resulting from the alkaline caustic action at the negative pole is just the contrary, softening and liquefying, and tending to promote

discharge and hemorrhage. Logically enough, its dissolvent powers were applied to the opposite class of cases, where there was no hemorrhage, and the object was rather to reduce the bulk and solidity of compact masses of fibroid material. Experience has proved this to be as good in practice as in principle. The positive pole is therefore designated as "anti-hemorrhagic" or "hæmostatic," while the words "hemorrhagic" or "denutritive" are applied to the negative pole.

Thirdly, Apostoli has taught us a much more satisfactory way of utilising these currents in uterine diseases. His predecessors had used currents which were generally uncalculated and ineffective. They were often not strong enough to do much good, yet at other times sufficient to bring about mischievous results. They were brought into play in an ill-judged fashion, and, when used by means of puncture, the punctures were made through parts which ought to have been left untouched. Now the operation is performed under such control as to be a matter of measurable certainty. A strong and regular current is at command. By means of the galvanometer a knowledge of the exact intensity of the current employed is ensured. The dosage can be regulated in proportion to the cauterising and trophic effects considered necessary. A current of high intensity can be made to traverse the tissues inoffensively, and brought out through the abdominal integuments in a dispersed fashion, without more than a temporary blush, and made to complete the circuit through the cutaneous electrode embedded in wet clay. Than this clay nothing as yet has been found more effectual. Then, by insisting upon the intra-uterine introduction of the current by means of the uterine sound, or its direct interstitial application through the inattackable trocar, a certainty of action is obtained which was otherwise out of reach. The whole performance is thus strictly at the will and under the control of the operator, who, granted his mastership, wants no other guide either as to the dosage, direction, or duration of the current than the facial expression of the patient, or her declaration of tolerance.

Fourthly, other important points upon which we have clear and definite information are the modifications which this treatment requires according to the varying nature of the cases, and the successively changing circumstances of each case as the treatment is going on, and the wide range of uterine affections to which it is adaptable. Given a tumour and a current, there is no such thing as reciprocal automatic action. At every step of the process of cure, deliberation, judgment, and promptitude of resource are challenged. One day there is an unaccountable power of endurance, another an exaggerated sensibility, one day a perplexing structural resistance, another an easy flow of current, all which have to be taken cognisance of, and throw an ever-recurring

strain upon the mindfulness of the surgeon, enough to baffle book-guided novices, and make inestimably valuable the more than five years' experience to which we can recur for counsel. A field, too, is opened up for exploration among the infinitely multiform presentations of disease of the female generative organs, untraversable by the limited powers of any one man, but to which Apostoli has pointed the way. This will be the work of the coming generation.

Lastly, there are several interesting questions upon which the work of Apostoli has thrown a new ray of light, such as the dangers and difficulties of the procedures; their being a cause, or the reverse, of subsequent sterility; the practicability of applying the treatment in cases where the uterus is impenetrable; the permanence of the benefits derived from the treatment in the mitigation of the symptoms and the reduction of the tumours; the relation of the menopause to the production or dispersion of fibroid enlargements.

But, admit that there may be danger in treating our patients by electricity. Is this a reason for rejecting it? What surgical operation is free from risk? Would common sense sanction our leaving disease alone till science has reached completion and skill infallibility? The danger lies not in the method but with the operator, and the moral is, that no man should undertake this work till he has qualified himself to do it well. Then, as to the permanence of cure, where cure there has been, one can only say that though five years and a half is but a short term to form estimates upon, when we are assured that during that time the return of symptoms, or the necessity for further measures has been quite exceptional, it augurs well for the future, and the objection of the possibility of relapse becomes of little weight.

Again, when Apostoli tells us that some of his patients now under treatment are women in whom the tumour developed after the menopause, no trace of such a growth having previously existed, what are we to say to the principle of Hegar's operation? To say the least, it would limit castration in the treatment of uterine disease to the cases where loss of blood is the prominent symptom in younger women. I might go on much further, but I think I have said enough to show that whatever may be, or may not be, the merits of Apostoli's method, we have made since he began his work a distinct scientific advance. And coupling the specific information we have thus acquired with our previous diagnostic tact and pathological exactitude, it appears to me that we are in a better position, even supposing that circumstances hinder the personal practice of the method, not only to discuss the abstract principles upon which it is based, but as consultants to pronounce upon its respective applicability to the cases submitted for our opinion.

There are conditions of fibroid tumours in which it would seem to me almost idle to suggest electricity. A polypoid growth from the mucous surface of the uterus projecting into the cavity, or perhaps through the os, can be so easily and expeditiously taken away that I should not think of any slow or gradual process. Neither does it appear very probable that a subperitoneal outgrowth from the body or fundus of the uterus could be in any great degree affected by any current that could be made to reach it. Myomotomy would be the work of minutes, and the risk scarcely worth mentioning. Even large solid tumours, the removal of which means the removal of a great part of the uterus, have been successfully removed by me and by others, and success has increased with experience. But the risk must be always great, and there are tumours so large, or with such intimate connections, that no prudent surgeon would meddle with them. Here, surely, is the occasion for the electrician to show his power. His method is a new resource for a desperate condition, and should be welcomed as such. It has been successful in such cases, if not completely so yet to a degree which has rendered life enjoyable. No weak prejudice should stand in the way of recommending a trial under experienced guidance.

When the object is mainly to suppress hemorrhages, electrical treatment has decided advantages over other practices. Should the tumour be growing, but not advanced beyond the limits of reasonable surgical interference, balancing the comparative risk, I should be disposed to put the matter to the test; since in case of failure, the more hazardous operation of removal can still be done, In my opinion, with the option before her, it would be neither wise nor charitable to give a patient strong advice in favour of an immediate cutting operation.

Experience seems to show that there is a group of cases, numerous as they are troublesome, of chronic metritis with enlargement and surrounding deposits, which may be cited as preeminently eligible for electric treatment. They are, as regards the patient, painful and exhausting. To the judicious surgeon they are exasperating by their rebelliousness, and in some rash hands they have opened the way to practice more lamentable than the disease. It will be one of the crowning merits of electro-therapeutics if proved to be equal to bring relief to these patients. Recent reports give good reason to hope that this end may be realised by a careful use of the positive galvano-puncture.

We have not, I am inclined to think, taken heed enough of the work of Tripier and Apostoli in reference to various disordered states of the uterine appendages. The soothing effect of the vaginal or uterine bipolar application of the induced current in some distressing forms of ovarian neuralgia and vaginismus is said to be marvellous and enduring.

As a last word, I may say that we are face to face with an important revival; and though some American surgeons have gone before us in its acceptance, nowhere more than in our own country has there been shown an open-minded readiness to weigh fairly all the evidence which Dr. Apostoli has to set forth in support of his system. In London we have heard, through the medical journals, of some failures, of one death, and of more than one accident, probably due to the inexperience of the practitioners. But we have far more encouraging reports from Edinburgh; and if some member of this society who combines sufficient knowledge of electrical science with practical experience of the diagnosis of uterine diseases, and of the treatment by other methods, will carefully put to practical test the conclusions already arrived at by Dr. Apostoli, I am very hopeful that the result will not be disappointing.—*British Med. Journal, May* 12, 1888, *p.* 995.

91.—ON THE EFFECTS OF CHRONIC ALCOHOLISM IN PREGNANCY AND PARTURITION.

By J. Matthews Duncan, M.D., F.R.S., Physician-Accoucheur to St. Bartholomew's Hospital, London.

While, in my own experience, I have not made observations of injurious influence of chronic alcoholism on women in pregnancy and parturition, apart from the tendency to miscarriage or premature labour, it is yet probable that such bad influence is exerted, and I quote the testimony to this effect of Dr. Kirk. "For my own part," says he, "I am convinced that indulgence in alcohol beyond the most moderate extent, is frequently in the last degree disastrous to a pregnant woman and her progeny." "I have now," he adds, "seen cases of fatal rupture, fatal inversion of the uterus, and fatal post-partum hemorrhage in habitually drunken women. I believe there is a marked tendency to hemorrhage, more especially in such subjects." Before Kirk, Joseph Frank described bad consequences as occurring in lying-in women.

In the puerperal state of women in a condition of chronic alcoholism, the occurrence of the nervous delirium of Dupuytren is far from rare, and of it I have seen several examples; the occurrence of delirium tremens is extremely uncommon, and of it I know only one case which occurred recently in my own practice. It seems to me that this statement, as to a unique case, probably gives an exaggerated idea of the rarity of the disease; yet that it must be very rare I cannot doubt, seeing that I have had more than forty years of large experience in midwifery, and that, during all that time, I have had considerable familiarity with obstetric literature. It is scarcely necessary here to say that the injurious influence under discussion is that of chronic, not of mere acute alcoholism; that produced by habitual drunkenness, or slight but

long-continued soaking, not that produced by a single or an occasionally repeated debauch.

Delirium tremens is a well-known disease, with its sweatings, its overpowering terrors, and their accompanying violence: it needs no description. The nervous delirium of the operated on, and of lying-in women, is a disease much less striking in its characters, yet it is scarcely liable to be confused with the delirium symptomatic of fever. Not only has it characters less striking than those of delirium tremens, but it is also much more the subject of variations of degree. It may be so slight as scarcely to attract notice, or it may be severe and alarming; yet it appears to me to be, perhaps always, distinct from the regular delirium tremens.

It is very difficult to picture the condition of patients in this nervous delirium of chronic alcoholism in a few sentences, and the words of Dupuytren and of Fournier may be well adopted with this object. The former speaks of its first period as characterised by agitation, anxiety, insomnia, loss of appetite, nausea, vomiting, hallucinations of hearing, sight, and touch, rarely much thirst, little fever, and tremblings only occasionally. Fournier giving a fuller statement fails, as he himself admits, to keep quite true to the distinction from delirium tremens. "As to the nervous delirium of the operated on, described by Dupuytren, it approaches," he says, "to delirium tremens by so many of its characters that it seems to deserve being confounded with it. But there are more delicate cases where the delirium tremens runs the risk of being mistaken. When it complicates an acute affection, it is often difficult to differentiate it from febrile or symptomatic delirium. A minute study of the phenomena is then indispensable, and even this is not always sufficient entirely to remove doubt. In general, symptomatic delirium does not present the violence, nor the agitation, nor the need of movement, nor the interminable loquacity of the delirium ebriosum; and, further, it has not the unquiet and perplexed character; it is less subjected to sensorial troubles, and hallucinations especially take less part in it; it does not present the same bizarre mixture of just ideas and of wanderings: it does not admit in the same degree of giving place to a momentary return of the reason under the influence of a diversion somewhat active; finally it is much more rarely complicated with trembling and persistent insomnia."

It will be observed that Fournier speaks of nervous delirium complicating an acute affection. That this may occur there can be no doubt, but what I wish here to remark is that in all the well-marked cases that have come under my observation there has been a slight degree of an acute affection, which I would as readily describe as complicating the nervous delirium. This has been observed even in the slightest cases, and it was so in the case of delirium tremens. The affection is briefly described as a para-

metric swelling and induration, with tenderness, not becoming extensive or persisting, or causing much alarm.

It is certain that delirium tremens is very much rarer actually in women than in men; and this comparative rarity is so great as to justify the belief that women are less liable to it than men. In other words, this comparative rarity justifies the belief that the same amount of inebriety in women and in men will have as a consequence far fewer cases of delirium tremens in the female than in the male sex. Fuller demonstration of this belief is desiderated.

The disease is not restricted, as a complication, to the recently operated on; it occurs in medical cases, as of pneumonia, as well as in surgical cases. Lancereaux, believing the nervous delirium of Dupuytren, Albers de Breme, and Lind, to be delirium tremens, cites Grisolle, Rayer, Briquet, Schmidt, and Chansing, as describing its occurrence in medical cases, and as supervening on the seventh or eighth day, not at the beginning of the disease, or during convalescence. He adds that, of 636 cases in the Duchy of Nassau recorded by J. B. V. Frank, 117 occurred in the course of various diseases and injuries. In pneumonia, 50; in compound fracture, 11; in pleurisy, 7; &c.

The puerperal state may be described as partaking of characters both medical and surgical. The following case began, as in medical cases, on the seventh day.

Mrs. R., 31 years of age, 11 years married, has had six children and three miscarriages, was attended by Dr. Mack at the birth of her seventh child, in which there was nothing unnatural. On the second day after delivery, symptoms which suggested an attack of typhoid fever made their appearance; copious peasoup stools; pulse about 120; temperature from 103° to 104·5°; manner excited and otherwise unnatural. [There did not at any time appear the eruption of typhoid.] On the fourth day of her confinement I could find no distinct local disorder to account for her peculiar condition. There was little milk in the breasts. There was some tenderness on deep pressure in both iliac fossæ; and, per vaginam, some fulness was suspected on each side of the uterus. These slight conditions remained little modified till the patient was convalescent, in the course of the third week after the birth of the child. The womb was slow in its progress of involution.

On the sixth day there were traces of delusions, but no other notable addition to former symptoms. At this time alcoholism was provisionally diagnosed, but inquiry obtained only asseverations of strictest temperance. Yet the nurse said her patient frequently asked for brandy. On the seventh day it was accidentally discovered that she had daily been having frequent small doses of brandy during the latter part of the pregnancy. In the evening she had regular delirium tremens. No milk in the breasts. Tongue has whitish fur and is red along the middle line. A large

opiate did not procure sleep. On the ninth day the vivid delusions disappeared, she was rational (but an excited, unnatural manner continued for some days longer). Temp., 101°; pulse, 108; perspirations. Peasoup diarrhœa continues. After this I learned that she slowly recovered health and strength.

Sterility, whether absolute or relative, is often a result of habitual drunkenness, and I have already cited the evidence of Lippich on this point. In practice cases are not rare where fertility ensues on change of habit to that of total abstinence from spirituous liquors; and again, cases are not rare where fertility is arrested by soaking, and returns on the bad habit being given up. You rarely (says J. P. Frank) see a woman who drinks much have many children; or, if she has, they generally die soon.

Many authors attest the influence of chronic alcoholism in inducing abortion, miscarriage, or premature labour. In his dissertation on the drunkenness of women, Michæl Alberti, after quoting Riedlinus in his support, says that innumerable instances establish the truth that a woman who is addicted to drunkenness often aborts or brings into the world premature children and children which have the most terrible diseases. To the same effect write J. P. Frank, and also Joseph Frank as quoted by Huss.

Mrs. S. was married at 19, and rapidly had one abortion and five children, of which the last was born when she was 24 years of age. About this time she acquired drunken habits and became very ill, the liver being enlarged, with ascites, and latterly amenorrhœa. In the early part of this drinking period she had three abortions about the third month. After about seven years of the bad habit she, in order to save her life, became a total abstainer, and her health was completely restored. She soon became pregnant and then came under my care. She bore her child naturally, and made a good recovery. This child was born eight years after the last living child, and when she was 32 years of age. About two years after the birth of this child she again fell into bad habits and could not be restrained. She became once more pregnant, and had albuminuria, uræmic eclampsia, and miscarriage about the sixth month. Soon after she died of renal disease.

Mrs. T., now 32 years of age, was married at 19, and had five children, of which the last was born in her 27th year. At this time she became much addicted to drinking; kept her bed very much; had great loss of power in the lower limbs; and her liver became considerably enlarged. The bad habit had continued for nearly six years, when I was called to see her, and during these years she had had six early miscarriages. I recommended, and succeeded in securing, total abstinence from alcoholic drinks. She soon regained her health, and in less than a year bore a living child, which was soon followed by another. Since its birth I have not heard of her.—*Edinburgh Medical Journal, April* 1888, *p.* 878.

92.—ON STENOSIS OF THE CERVICAL CANAL AS A CAUSE OF STERILITY AND DYSMENORRHŒA.

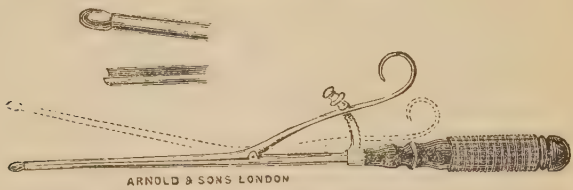
By Thomas More Madden, M.D., Obstetric Physician to the Mater Misericordiæ Hospital, Dublin.

According to my experience—now extending over nearly a quarter of a century—in hospital or in private consultation practice, at home and abroad, stenosis of the cervical canal is not only the most frequent of all the causes of sterility, but is, moreover, the most amenable to appropriate treatment of all the physical factors in the causation of infecundity.

The credit of suggesting the dilatation of the os uteri and cervical canal by means of sponge tents is generally conceded to the late Sir James Simpson, by whom it was claimed in a paper in the Edinburgh Journal of Medical Science for January, 1850. It is not my purpose here to refer in detail to the successive improvements which have since been effected in the methods of carrying out the gradual dilatation of the cervical canal, the most important of which were due to Dr. Sloan, who introduced the use of laminaria tents as a substitute for the old-fashioned and now, happily, generally disused fœtid and inefficient sponge tents; and to Dr. Kidd, who improved on Dr. Sloan's idea by the employment of a number of laminaria bougies to secure a comparatively more rapid and complete expansion.

I now desire to call attention to an instrument which I have designed for the same purpose, and which, I venture to hope, may be found by others, as it has been by myself, more satisfactory in the treatment of dysmenorrhœa and sterility occasioned by stenosis than other dilators at present in use. This instrument will, I believe, be found to supply a want long recognised by gynæcologists—namely, that of a reliable and effective means of securing the rapid and permanent dilatation of the cervical canal in the treatment of stenosis giving rise to the morbid conditions now under consideration. The principles on which it is constructed differ from those of other dilators in several respects, and, above all, in one which I consider most important—viz., in producing expansion of the canal from within outwards—in other words, in imitating the natural process of expansion from the uterine cavity downwards to the os uteri; whereas most other dilators, such as Hegar's, &c., act in the opposite direction. In my own hands the utility of this instrument, the expansion effected by which may be determined and accurately measured by the affixed index, has been fully tested in a large number of cases of sterility and dysmenorrhœa in hospital and private practice. I may add that my dilator, which does not occupy more room than the ordinary sound when introduced, may also be used with advantage for the dilatation of the female urethra in many cases in which this proce-

dure is indicated. This instrument has been made for me by Messrs. Arnold and Sons, West Smithfield, London.



As the method I employ in these cases differs in some respects from that generally adopted, I will here refer briefly to its details. I may observe that during the past ten years I have operated on some hundreds of cases of stenosis, and within the last year alone I thus successfully treated in my hospital very close upon a hundred such cases, in many of which I had the assistance of Mr. Duke, obstetric physician to Steevens' Hospital.

In the first place, I would advise that this operation should be undertaken about a week after the termination of the last painful menstrual period, and that it should be preceded by daily hot water syringing for some time. To proceed with any comfort to ourselves or advantage to our patient, she should be placed under an anæsthetic, and adjusted in the ordinary left lateral semi-prone position, on a proper gynæcological couch or table. Then, the cervix being exposed by the duck-bill speculum, the anterior lip is seized by a strong vulsellum, and drawn down by an assistant as close to the vulva as possible, where it is to be retained. Next the sound should be passed to ascertain the position of the uterus, as well as the immediate permeability of the canal. Then the metrotome (I much prefer Simpson's original instrument to any of its modifications) should be introduced well into the uterine cavity, and being expanded to whatever extent may be necessary in each case, should be withdrawn so as to divide the cervix freely in a transverse direction from the os internum to the outer orifice of the passage. It should be again introduced, and the same procedure repeated in an antero-posterior direction. The uterine cavity should now be syringed out with hot water so as to wash away all clots and arrest any hemorrhage, then I introduce the dilator already described, and expanding this to its full extent, I allow it to remain for a few moments, and then withdraw the instrument, with blades apart, so as to tear asunder and distend the cut surfaces until I can pass my index into the uterine cavity. In this way any probability of either hemorrhage or of subsequent re-union of the divided parts is effectually provided against. The uterus is to be again washed out with hot water; and, lastly, I introduce a tampon of Lawton's cotton saturated in glycerine of

carbolic acid, which is left *in situ* for some days so as to fill and distend the passage from the uterine cavity to the os externum. The introduction of this may be found by no means an easy matter by the uninitiated, and can best be effected by the employment of the sliding repositor.

After the operation the patient must be kept in bed on low diet, and syringed daily with hot water for eight or ten days, any pain being meanwhile treated by opiates and poultices. After this period a flexible tube or uterine stem pessary is introduced, which should be worn for another month, and then, and not sooner, the patient may resume marital life with a fair probability of subsequent impregnation, and almost absolute certainty of immunity from any recurrence of dysmenorrhœa.

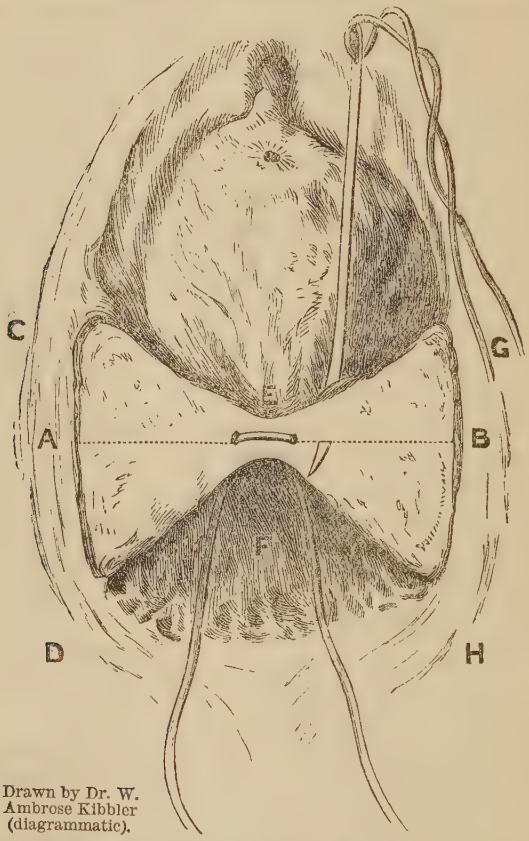
With regard to the results of this operation, my experience has been most satisfactory in the curative treatment of a large proportion of the cases of sterility and obstructive dysmenorrhœa that have come under my observation. This result I ascribe mainly to the thoroughness with which I carry out the dilatation of the contracted passage in the cases referred to. And as I have been reproached by some more timid practitioners with what they regard as the rashness or boldness of my practice in this respect, I may here venture to add that when cautiously, albeit boldly, carried out, in appropriate cases and by expert hands, no ill results need attend the operation in question, and I myself have had no such reason to regret its performance. In only two cases have I seen any serious hemorrhage after it. Nor have I found it necessary to plug the vagina in such cases, as I have seen done by some practitioners, to the great discomfort of the patient. In only very few instances have any inflammatory symptoms or cellulitis followed its performance, and in most of these cases the operation had been performed by other gynæcologists previously.—*Dublin Journal of Med. Science, April* 1888, *p.* 299.

93.—ON CATGUT SUTURES IN THE OPERATION FOR RUPTURED PERINEUM.

By G. Ernest Herman, M.B.Lond., F.R.C.P., Obstetric Physician to the London Hospital.

During the last few years I have done the operation for ruptured perineum in a manner somewhat different from that usually described. The method I now follow depends essentially upon the use of fine catgut for the sutures. I describe the operation as in a case of complete rupture through the rectal sphincter. I make the raw surface by splitting the recto-vaginal septum. The raw surface so produced may be described as forming two triangles, a right and a left (C D E and G H E), the base of each (C D and G H) being the skin of the perineum, the sides being formed by the mucous

membrane of the rectum and that of the vagina, the apices being truncated and meeting in the middle line. A line (A B) may be imagined drawn through the middle of each triangle, so as to bisect its base; this line I shall mean when I speak of the middle of the



Drawn by Dr. W. Ambrose Kibbler (diagrammatic).

raw surface. The first suture is entered at the junction of rectal mucous membrane and raw surface, close to the apex of the triangle, and brought out in the middle of the raw surface; entered again at the middle of the raw surface on the opposite side, and brought out as close as possible to the junction of raw surface and

rectal mucous membrane. This suture is then tied, and the ends held out of the way with forceps. (The diagram shows the first suture passed, but not tied, and the second suture being put in. This is for the sake of pictorial clearness, but it is better to tie each suture before putting in the next, and it is convenient at this stage not to cut off the ends, because by them the parts can be pulled upon if it be wished.) The second suture is put in at the junction of vaginal mucous membrane and raw surface, brought out at the middle of the raw surface, a little nearer the base of the triangle than the first suture, entered at a corresponding point in the middle of the raw surface on the opposite side, and brought out as close as possible to the junction of vaginal mucous membrane and raw surface; this is then tied. The third suture is entered at the junction of rectal mucous membrane and raw surface, still nearer the base of the triangle, and so on, sutures being entered alternately from the rectal and vaginal aspect until the two triangles of raw surface have been completely brought into apposition. When all except a strip of raw surface parallel with the base of each triangle (C D, G H) has been brought together, the apposition of the bases is completed by transverse sutures, through the skin of the perineum. It is well not to tie the last pair of sutures (vaginal and rectal) until these transverse stitches have been put in. When the stitching is complete, the ends of all the sutures are cut short. The rectum is washed out twice a day for the next fortnight. The stitches are not removed. At the end of a fortnight usually all trace of them has disappeared.

For the majority of cases of complete perineal rupture, this mode of stitching, with fine catgut alone, is quite enough. But in some cases the laceration has been in the beginning attended with sloughing, and then there may be much cicatricial tissue about the parts which have to be brought together, so that they cannot be approximated without much strain on the stitches. In that case it is well, before sewing up with catgut, to pass a single deep stitch of silkworm gut through the recto-vaginal septum in the usual way, so that this may relieve the strain on the fine catgut.

The chief advantage of this method of operating is that no sutures have to be removed; and in the bad cases last described, only one suture. The removal of wire sutures, and even of silkworm gut, causes a good deal of pain to the patient. By the use of a large number of stitches there is a larger surface brought into contact, there is less strain on each stitch, and little, if any, suppuration in the suture tracks. The perineum produced is thicker and larger than that which results from the puckering effect of the ordinary method of suture. The only disadvantage of this method is that the operation takes rather longer in performance.

A continuous catgut suture has been recommended for recent rupture of the perineum: and it might also be used for the second-

ary operation. But it has this disadvantage, that if the catgut breaks, then the whole suturing has to be done over again; or if the knot slip, then the whole gets loose. With an interrupted suture as here described, if one stitch break, it is only that stitch which needs replacement; and if one or two knots should slip, the others hold the parts together, and it makes little difference.

For a rupture which does not go through the sphincter, only one set of stitches is required. Here the advantage of catgut is decided, for, the operation once done, all the after-treatmentwanted is to keep the parts clean: no sutures have to be removed.—*British Med. Journal, June* 9, 1888, *p.* 1217.

94.—ON THE TREATMENT OF PLACENTA PRÆVIA.

By Theophilus Paivny, M.D., Professor of Obstetrics in the Jefferson Medical College, Philadelphia.

The treatment of placenta prævia is still a subject of no little discussion, obstetricians not having yet adopted by common consent one method as the best, probably because there is no such single way to be followed to the exclusion of every other. Dr. Barnes, very justly as I think, condemns some of the methods employed as disregarding the life of the fœtus. The craniotomists as opposed to the Cæsareans, occasionally refer to the sentimentalism of the latter, when they urge their favourite operation on the ground of saving the life of the child, even though the mother should run a greater risk than if it were sacrificed. But a similar manifestation of feeling seems to be forgotten by some in their mode of treating cases when the placenta is prævia. Le Page, for example, says: "The chances for the child's life, I therefore contend, should not be a factor in the treatment." The same opinion has been avowed in more than one of our American medical societies.

In what has been termed the recent method of treating placenta prævia, that is by bimanual podalic version, as advocated especially by Lomer, Hofmeier, and Behm, the fœtal mortality has been very great, that of the last reaching 83·4 per cent. Of course, the mortality is still greater, if we adopt the rule laid down by Le Page: "At whatever period of utero-gestation after mid-term we become aware of the existence of placenta prævia, we shall serve the best interest of our patient if we at once bring to a conclusion a condition of things fraught wich the utmost danger." Yet in the same paper the author states: "Hemorrhage during parturition is not inevitable, nor does loss of blood invariably take place during gestation." The last statement evidently condemns the one immediately preceding, as an invariable rule of practice. I do not believe the majority of obstetric authorities claim that in all cases of placenta prævia the pregnancy must be at once ended; certainly Churchill, Depaul, and Spiegelberg did not so teach. Following

such teaching, and that of others equally famous, as well as the light of experience and sound reason, as I believe, I said in my work upon obstetrics, referring to the management of cases of placenta prævia in pregnancy: "If loss of blood be slight, and especially if the fœtus be not yet viable, the expectant plan is indicated." One gentleman, for whose obstetric knowledge and ability I have the highest respect, exclaims: There is no expectant treatment of placenta prævia. And another gentleman, discussing the question in a medical society, and doubtless never having read what I did say, charges me with absolute advocacy of expectant treatment, not specifying the conditions in which it was advised, and graciously attributes such recommendation to my ignorance. By those words as first uttered I still stand, insisting that we have no right to sacrifice the life of the child when the mother's is not in jeopardy. But should the hemorrhage be serious, let the pregnancy be ended, whether the child is viable or not. Further, after that viability has been reached, if the placenta be deeply situated, whether the implantation be central or only lateral, the induction of premature labour is indicated, furnishing not only the best security for the mother's, but also the best chance for the child's life. My advocacy of this practice dates many years back. Thanks to the couveuse and gavage, the time when the fœtus becomes viable may now be placed in the seventh month, and not at its end, as has hitherto been done. Now in the great majority of cases of placenta prævia hemorrhage does not occur prior to this time; and, hence, there is in most cases a protection of the child's life until it is capable of continuing after delivery, should it escape the perils of birth. The question therefore is, How can delivery be effected so that there is a fair chance for the child's life without imperilling that of the mother? Zweifel, recognizing the deplorable mortality, in regard of the fœtus, attending podalic version as usually done, suggests that the obstetrician, instead of introducing his finger or two fingers on one side of the os, for the purpose of making version, should pass them anteriorly, for there they can enter the uterus further, and with less violence to the placental attachment, and thus a conservative influence be secured in reference to the child: this suggestion may be of value.

All of the three chief methods when labour is complicated by hemorrhage in placenta prævia, are essentially only different ways of applying a tampon; the bleeding is arrested by pressure from the vagina when the classic tampon is used; from the cervico-uterine canal either in case of the hydrostatic dilator, or in that of the drawn-down limb of the child; it is evident, from statistics, that the last method of tamponing is not the best for the life of the child. If we conjoin with the pressure from the hydrostatic dilators of Barnes, his method of partial detachment of the placenta—the physiological reasons for this have been so well presented by him

that it is unnecessary, even if there were time, to call attention to them now—we probably have attained the best method of treating placenta prævia after labour has begun, and the vaginal portion disappeared, so far as the interests of both mother and child are concerned; the child's life is less imperilled, in part because prompter delivery can thus be effected.—*Philadelphia Medical News, June* 16, 1888, *p.* 651.

95.—ON THE TREATMENT OF EARLY EXTRA-UTERINE GESTATION.

By G. Ernest Herman, M.B., F.R.C.P., Obstetric Physician to the London Hospital.

The great difficulty in the decision as to the early treatment of extra-uterine gestation is the extreme uncertainty of diagnosis. It is necessary, in considering each plan of treatment, to weigh carefully what will be its result if the diagnosis be incorrect. This uncertainty of diagnosis, of course, affects also prognosis. Were we to confine ourselves to cases in which the diagnosis has been verified, either by post-mortem examination or by abdominal section, we should conclude that extra-uterine gestation was one of the most fatal diseases known. There may, however, be cases in which rupture takes place, but hemorrhage spontaneously ceases, and the fœtus and the effused blood are ultimately absorbed. Leopold experimented on animals by opening the uterus and turning the embryos out into the peritoneum, and he found that absorption took place. A very early fœtus may be dissolved in the liquor amnii. Smellie describes such a case, in which the amnion was expelled separately from the chorion, and the fœtus could be seen inside it. After being kept for twelve hours most of the fœtus was found to have been dissolved. A case has been reported by Dr. Petch, in which a fœtus so advanced that the fœtal heart was heard, died, and was almost completely absorbed. Among the cases operated on by Mr. Lawson Tait, out of twenty of which I have been able to find published details, there are six in which a placenta but no fœtus was found—a proportion surely too large to be accounted for simply by supposing that the operator overlooked the fœtus. I therefore do not doubt that absorption of an early fœtus, so as to leave no trace behind, is possible. How frequent such cases may be we cannot say. It has been thought by persons very competent to form an opinion on the subject that this frequently happens. Gallard thought that most hæmatoceles were extra-uterine gestations. His opinion is shared by Lesouef. Leopold says: "How often may it happen that rupture of the gestation sac....in the second month may run its course with the clinical phenomena of a retro-uterine hæmatocele, and end favourably with a complete absorption of the effused blood? I

do not doubt for a moment that such hæmatoceles occur much oftener than we usually think, and Schroeder believed that he had seen cases of tubal pregnancy run a favourable course in this way so often that he believed termination in cure to be the rule." Veit goes even further, and says that extra-uterine pregnancy is the most frequent of all tube diseases for which patients come for treatment; that all cases of hæmatocele occurring in women who think themselves pregnant or have suffered from irregularities in menstruation before the illness should be taken to have arisen in tubal pregnancy; and that cases of apparent parametritis after abortion should be suspected of being hemorrhage from extra-uterine gestation. I cannot go quite so far as Veit; for if extra-uterine gestation were really the commonest of all tube diseases, surely the fact should be capable of easy demonstration by the results of post-mortem examination and abdominal sections during life. But I believe that cases of early extra-uterine gestation, ending in early rupture, followed by absorption of fœtus and effused blood, are much commoner than is usually believed. I have seen three cases of large hæmatoceles, preceded by a history pointing to extra-uterine gestation, and accompanied by the passage of a decidua, in each of which the patient recovered. I have seen many in which, with the signs and symptoms of hæmatocele, there was a history more or less consonant with the supposition that extra-uterine gestation had been present. The diagnosis in these cases, although far from certain, yet rested upon grounds quite as strong as those supporting the diagnosis in the great majority of the cases reported as having been cured by electricity.

Although it is impossible to exactly state how often extra-uterine gestation ends in early rupture, followed by absorption, and very difficult to even approximately answer this question, yet it is upon this that the decision as to the right treatment must mainly depend. If extra-uterine gestation be a disease almost always fatal, then it is justifiable to submit the patient to a very considerable risk for the purpose of curing it; but if it be one from which patients often recover under expectant treatment, then greater caution must be observed.

Supposing that the diagnosis has been made with the greatest probability, what is the course to follow? It seems to me that the choice lies between two alternatives—expectancy and abdominal section. There are other measures which have been recommended, and these it will be well to consider.

Tapping.—This has been much recommended, but I cannot join in advising it. It has been recommended for the, at present, hypothetical purpose of bringing to an end an unruptured tubal gestation. I speak of this as hypothetical, because I do not know of any case in which an extra-uterine pregnancy without any of the signs and symptoms indicating possible previous rupture has been

tapped. Mr. Lawson Tait says that he never diagnosed such gestation before rupture, and that "he did not know of any one who had ever asserted that he had made a diagnosis of tubal pregnancy before rupture had taken place." But supposing that the diagnosis were made, I am not sure that it would be so easy as it looks to direct the aspirator needle into the centre of a small and freely movable tumour, and to push it the exact distance necessary to reach the liquor amnii, neither stopping short of this point nor going beyond it. And I do not think it quite certain that drawing off the liquor amnii will kill the fœtus. It has been drawn off in cases of five or six months' pregnancy without killing the fœtus, and I see no reason why this should be more fatal at earlier periods of pregnancy. But the great objection to it is that it is not safe. There are several cases on record in which death either from hemorrhage or peritonitis was the result of tapping. Considering that in early extra-uterine gestation the vessels enter the sac from below, I think it is to be expected that they should sometimes be wounded, however fine be the trocar used. Puncture, therefore, is dangerous; its result is at least uncertain, and it has never to my mind been proved to be efficient. There have been cases published in which a trocar has been put into pelvic tumours assumed to be extra-uterine pregnancies, some serous fluid has been drawn off, and the tumours have afterwards subsided; but in all that I am acquainted with the diagnosis was very doubtful.

Thomas's operation of cutting from the vagina with the cautery knife.—An eminent author has spoken of this as "a bold and judicious proceeding." I think it bold, but not judicious. The operator cannot tell into what structure he is putting his red-hot knife, and if the diagnosis should be erroneous the results will be disastrous. In a paper on Delivery by the Vagina in Extra-uterine Gestation, published in the Obstetrical Transactions for 1887, I have criticised this operation more at length, and brought together the cases in which it has been performed. They are few, and it is to be hoped they may remain so.

Galvanism.—Mr. Lawson Tait has characterised this as a "nonsensical proposal"—a phrase which is at least perspicuous. I confess that were it not for the many able men who have not merely considered the "nonsensical" proposal worth putting in practice, but have recorded good results from doing so, I should have been disposed to agree with Mr. Tait. I should have thought that an electric shock or current strong enough to kill the fœtus would have killed the mother too. The arrangements necessary for the nutrition of the embryo are much more elaborate and more easily put out of gear at the end than the beginning of pregnancy. Thus the early embryo, there is reason to think, can survive detachment of the chorion from its maternal implantation, as in the production

of secondary abdominal gestation. But considerations of this kind are merely theoretical objections, which are not to be put into the balance against facts. There are a great number of published cases in which the diagnosis of extra-uterine gestation has been made, galvanism has been used, and the tumours have shrunk away. But the great mass of literature of this kind is far from convincing. The papers of Thomas and Garrigues contain many cases in which the diagnosis rests upon such slender grounds that it is impossible not to suspect error. The strength of a chain is in its weakest link, and when one finds seriously adduced as scientific evidence cases of an extremely doubtful kind, without apparently a sufficient sense of the possibility of mistake, one is apt to judge of the strength of the whole chain of evidence by these weak links. There are cases, however, such as that of Dr. Petch, in which the fœtal heart was heard, and after electricity had been used the cardiac sounds ceased. This case, so far as I know, is unique. But there are some others in which the diagnosis seems highly probable and the tumours went away. But in Petch's case the heart sounds were not affected at the time the electricity was applied. It is not at all uncommon for an extra-uterine fœtus to die before term when electricity has not been used, and I think we want a larger number of cases diagnosed with much greater accuracy than the great bulk of those hitherto published before it ought to be accepted as a fact that we can by a galvanic current kill an extra-uterine fœtus. And the evidence is not all on one side. A case has been published by Duncan in the St. Bartholomew's Hospital Reports (1883, p. 40), in which it was found that a faradaic current so strong that the pain would without ether have been unbearable, and that it produced vesication of the skin and a cauterising effect on the vagina, failed to kill a fœtus of five months. Electrolysis, the needles being introduced into the fœtus, was subsequently used, but did not immediately kill the fœtus, although it produced decomposition of the fœtal structures, with evolution of gas. In another case, published by Hicks, galvanism, one pole over the tumour, the other in the vagina, failed to kill the fœtus. Now, in my judgment, a single well-observed case of this kind, in which the diagnosis and the effect, or rather non-effect, of the treatment were beyond all doubt, outweighs a great number in which the diagnosis was uncertain, and the possibility of natural cure by rupture or death of the fœtus overlooked. And if electricity cannot be relied upon to kill an extra-uterine gestation, there are several objections to its use. First, it is wasting time and exposing the patient to dangers which might be avoided by more effective treatment. Then it is not free from danger, for there have been deaths accredited to electrical treatment of abdominal tumours. And even if electricity be successful in killing the fœtus, the patient is not put beyond danger, for the presence of a dead fœtus and

its placenta may be the source of many accidents. For these reasons I do not think it yet fully established that our rule of practice ought to be to use electricity whenever extra-uterine gestation is suspected.

There remains *abdominal section*, which has this advantage over puncture and electricity—viz., that, if successful, the cure is beyond all doubt final and complete. The objection to it is the risk to life; and the question which in individual cases has to be decided is whether the risk involved in an operation is greater than that of letting the patient alone. The question must be considered in each case by itself, for the relative risks of operation and expectancy differ so widely in different cases that a general rule cannot be laid down which shall be applicable to all cases at all times and in all circumstances. Abdominal section might be performed, if the diagnosis were made, before rupture. It never has been done, so far as I can ascertain. Maygrier quotes Veit as having twice operated before rupture, but on reference to the original record I find that in one case rupture had taken place, and as to the other no details are given from which to gather whether the sac had ruptured or not. Could the diagnosis be made with confidence, I think the certainty of cure by this method much outweighs the risk. And if, as in a large proportion of cases, the diseased tube be not adherent, the risk of operation would be hardly more than that attending the removal of normal ovaries.

I think I have seen operations spoken of as having been done "at the time of rupture." This phrase is only correct if understood in a loose colloquial sense. What is meant is, *soon after* rupture. A moment's consideration of the time that must be occupied first in sending for medical aid and then in making arrangements for operation will show that cases must be rare in which an operation can possibly be done so soon after rupture as to save the patient from the danger of death from the primary hemorrhage. In the majority of cases of ruptured tubal pregnancy which have been submitted to operation the patient has rallied from the hemorrhage, and it cannot be correctly said of them that they are cases in which life has been saved by arresting hemorrhage. Thus in only four out of twenty cases operated on by Mr. Lawson Tait, and of which I have been able to find published details, does it appear that the patient was in immediate danger from hemorrhage at the time of operation. The most that can be said is, that a disease has been removed which *might* have caused a renewed attack of hemorrage or peritonitis. But it is also possible that the patient might not have had further hemorrhage, and that fœtus and blood might have been absorbed, and the patient recovered, without operation. In these cases, the majority, it is not an alternative of operation on the one hand and death from hemorrhage on

the other, but of operation with a certain amount of risk but complete cure if successful on the one hand, against possible renewed hemorrhage and possible inflammation on the other. What the chance is of renewed or of fatal hemorrhage after the primary hemorrhage has once stopped we do not know, nor what the chance of recovery. But there is a possibility of recovery without operation. The risk of an operation, at present, can no more be precisely formulated than that of letting the patient alone. It depends on two things—the skill of the operator, and the condition of the patient at the time of operation. The progress in the past encourages the confident hope, and indeed certainty, that, as experience increases, not only the skill of the best operators, but the average knowledge and skill of surgeons generally, will attain a higher level, and so the mortality of this operation will diminish as that of other operations has done. The other important condition is the time at which the operation is done. If done, it should be done early. The earlier it is done, the less the patient will have suffered from the effects of hemorrhage; effused blood will not have had time to decompose, nor adhesions to form.

Briefly, there is good reason to think that many cases of extra-uterine gestation recover when left to nature. There is not yet evidence to show that either puncture or electricity can be relied upon to cure. Many of the cases of supposed cure by these means are doubtful as to diagnosis; in others it is possible that the cure was the natural course of the disease; both puncture and electricity have failed, and puncture is dangerous. Early abdominal section offers the best prospect in cases in which treatment is necessary. —*Lancet, May* 26, 1888, *p.* 1021.

96.—ON THE TREATMENT OF INCOMPLETE ABORTION.

By A. E. Aust Lawrence, M.D., Obstetric Physician to the Bristol General Hospital.

Having had a rather large experience in the treatment of these cases, and feeling that the profession, as a rule, have not very definite ideas on the subject, I am induced to place before my readers, in a very brief and practical manner, a line of treatment which has proved of service in my own practice. In the first place, I shall assume that the question of the patient being pregnant is set at rest in the affirmative; or, at all events, she has missed one period at least, and is now suffering from uterine hemorrhage, continuous and possibly excessive. If there is one thing more than another I am certain about, it is this, that no woman ought to be allowed to go on bleeding in an irregular manner without a vaginal examination being made; and if no cause for the bleeding be found *outside* the uterus, then the *inside* of that organ should be examined.

We will assume that the case has gone beyond the expectant line of treatment—that, in spite of rest, &c., the bleeding continues. This is what should be done. Make the incomplete abortion complete by clearing out the uterus; and if this is done in the way I advise, the results will in all cases be satisfactory. Put the patient on her left side (Sims's position), wash out the vagina with carbolic lotion 1 in 100, pass a duck-bill speculum, take hold of the anterior lip of the cervix with Sims's hook, and pass up into the uterus a bougie of 20 grains of iodoform; then one of my antiseptic and gelatine-coated sponge tents; retain this in the cervix uteri by a piece of iodoform wool in the vagina. In from twelve to twenty-four hours see the patient again. Remove the vaginal plug and the sponge-tent, both of which will be perfectly aseptic; wash out the vagina with the carbolic lotion, and now pass the finger into the uterus, and very likely you will be able to reach the fundus and clear out the contents. After this, wash out the uterus with carbolic lotion, and give directions for the vagina to be daily syringed with the same lotion. What I have described can be done in most cases. I will allude later on to some difficulties and how to meet them. The great secret in the treatment is to clear out the uterus.

There are a few points of practical interest in the management of some cases which may be of service, so I will mention them. First: In some cases it is impossible to clear the uterus from all fragments of ovum, &c.; in these cases, keep the inside of the uterus aseptic by passing daily a piece of iodoform bougie, and in a few days the material will be thrown off perfectly sweet. These are the cases that die of septicæmia, if care is not taken, because the remains of the ovum decompose *in utero*, and sepsis arises. As a rule, if these precautions are adopted, no trouble ensues.

Sometimes it is almost impossible to pass the finger up to the fundus to clear out the uterus; in these cases, a good plan is to partly retrovert the uterus, and then, with the fundus pressed against the sacrum, it is possible to get the finger right up, and clear out the uterine cavity. I prefer this way to pulling down the uterus with vulsella. The only instrument I use inside the uterus in these cases is a blunt curette, and I very seldom use that. Very often, in your manipulations to get out a piece of the ovum, you will find great assistance by passing along the side of your finger which is in the uterus a catheter, and injecting hot water. This stimulates the uterus to throw off its contents; and I have frequently found that the os uteri dilates at the same time, enabling you to get in two fingers, whereas before you could only get in one. In conclusion, I would urge all those who have the conduct of a case of abortion to give this treatment, with its precautions, a fair trial, and I am sure it will be to the benefit of the patient.—*Bristol Med.-Chir. Journal, March* 1888, *p.* 8.

97.—TREATMENT OF HEMORRHAGE IN FIBRO-MYOMATA BY HYDRASTIS CANADENSIS.

By Henry T. Rutherfoord, M.B., M.R.C.P., Assistant Physician, Chelsea Hospital for Women.

Hydrastis Canadensis as a hæmostatic agent in various uterine disorders does not seem to me to have met with as cordial an acknowledgement, in this country at least, as it deserves. In France, Germany, and America the drug has had extended trials, and the published results are most satisfactory. In the following five cases of uterine fibroids hydrastis was used with success:—

Case 1.—R. B., aged 38; married, but has had no children. For the last five months she has noticed a swelling in the stomach, which is slowly increasing. Catamenia are irregular and too frequent; they last one week or longer, the quantity being very profuse and much greater than formerly. She has constant dragging pains in the abdomen. Micturition is frequent. On vaginal examination an irregular hard nodulated fibroid tumour was found occupying the left iliac fossa, reaching almost to the umbilicus and passing to the right of the median line. The fundus uteri could not be distinguished. On April 2nd, 1886, the patient was ordered a mixture containing twenty minims of the tincture of hydrastis, to be taken every four hours. A great improvement in the patient's condition immediately set in, and after continuing this treatment for some time, the patient discontinued coming to the hospital, as she considered herself well.

Case 2.—Mrs. M., aged 46; childless. Complains that for the last ten years her abdomen has been gradually enlarging. Her periods have always been profuse, lasting sometimes for three weeks. On examination the anterior lip of the cervix was hard and greatly enlarged. Occupying the left side of the abdomen was a hard irregular fibroid tumour, reaching as high as the umbilicus and extending outwards to the flank. Uterine sound passed five inches. On April 2nd, 1886, the patient was ordered fifteen drops of tincture of hydrastis thrice daily. On June 18th an improvement had set in, "the catamenia are regular; duration five days; quantity moderate." At this visit liquor strychniæ and calumba were added to the hydrastis. The patient has had no more floodings.

Case 3.—D. B., aged 47, married, has had three children and several miscarriages. Complains of a swelling in the left side of the abdomen, which was first noticed some months previously. Her periods are regular, but very profuse, lasting sometimes fourteen days. Has had several attacks of metrorrhagia during the last three months. During March, 1887, she had three severe attacks of hemorrhage. On examination, a copious sanguineous discharge was present. The whole uterus was enlarged, the

uterine cavity measuring four inches. To the left, and above the fundus uteri, was a hard rounded fibroid tumour, which passed into the pelvis. On April 15th, 1887, she was ordered twenty drops of hydrastis in an ounce of quassia, thrice daily. At the end of a fortnight the sanguineous discharge had greatly lessened, and soon ceased. On June 24th my notes say: "Flooding entirely ceased." On January 20th, 1888: "The patient still continues free from floodings; periods regular, not as profuse as formerly, duration shorter."

Case 4.—S. S., aged 51, married, has had four children, consulted me in April, 1887, for "bleeding from the womb, which has continued off and on since December, 1886." Menstruation was quite regular until Christmas, the flow lasting a week and being rather profuse. On examination a fibroid tumour was found occupying the anterior and left lateral wall of the uterus. The new growth rose about an inch above the fundus uteri. The uterine cavity measured $3\frac{1}{2}$ inches. The patient was ordered a mixture containing bromide of potassium and ergot, but a fortnight after her first visit "the hemorrhage was still excessive." On May 20th, as the flooding still continued, a mixture of bromide of potassium and twenty drops of hydrastis was ordered to be taken every four hours, with the result that the flooding soon ceased. On July 1st my notes say: "Slight pinkish discharge at times only." The mixture was continued, and, on October 14th, my notes say: "The last catamenial period came on on October 9th, lasted five days, was not profuse." The patient is regular every month. There was no trace of malignant disease in this case, though the possibility of such disease was suggested.

Case 5.—E. C., aged 35, married, has had seven children, complains of flooding which first began with each menstrual period, but is now almost constant. For some time past has noticed a lump in the right side of the abdomen. For the past six weeks has been flooding very severely. On examination, the uterus was enlarged and rose above the pubes. The whole organ was large and bulky. On the right and in front of the uterus was a fibroid the size of a cocoa-nut, occupying chiefly the right iliac fossa. On September 2nd, 1887, a mixture of bromide of potassium and ergot was ordered, with a pill of cascara sagrada. The metrorrhagia was lessened, but not stopped. On September 30th, as the ergot did not control the hemorrhage, a mixture of hydrastis and bismuth was ordered. The floodings now ceased, and on December 30th my notes say: "Floodings have ceased for a considerable time. Patient considers herself well." To these cases others might be added, in which hydrastis checked the hemorrhage immediately, but their narration would be a repetition of the foregoing.

The two most reliable preparations of this drug are the tinc-

ture, in doses of fifteen minims to one drachm, and the fluid extract in doses of fifteen minims to half an ounce. I have invariably used the tincture with very satisfactory results. As regards its action on the human body, if we may judge from experiments made on rabbits, it would seem to be a vaso-constrictor in ordinary medicinal doses, whilst in large or toxic doses it is a dilator. Fellner, in a series of experiments made with this drug on rabbits, noted uterine contractions; and according to Wilcox these contractions are "unaccompanied by the distressing cramps of ergot or the flooding from the alternate contractions and relaxations." Woltering confirms the favourable results obtained with this drug by Fellner and others, and mentions cases in which the uterus measured, in one case eight centimètres, in another nine centimètres, and hemorrhage was an alarming symptom. The hemorrhage soon ceased on the administration of hydrastis, and the condition of the patient was greatly improved. Schatz denies its action on the muscular fibres of the uterus, but gives as one of the indications for the use of the drug hemorrhage due to submucous fibroids. Pallin has used this drug with good results, not only in uterine fibro-myomata, but in other conditions in which hemorrhage has been the chief symptom; but his results in five cases of fibroid tumours are not altogether conclusive, as other drugs were ordered with the fluid extract. In the cases I have recorded above, while hemorrhage was decidedly controlled by the use of hydrastis, its effects upon the size of the tumours were *nil*, at least so far as I could judge, and I was careful to note this point as accurately as possible. The administration of ergot causes in some patients an obstinate constipation, and frequently brings about derangements of the digestive tract. Hydrastis, on the contrary, can be taken continuously for a considerable time without any ill effects, and will be found to improve digestion and act as a stomachic tonic. Ergot again frequently causes painful uterine contractions, while patients to whom hydrastis is administered are entirely free from these pains.

Many patients with uterine fibroids come to us complaining of the excessive hemorrhage which is slowly but surely draining their system; the size of the tumour seems to cause them no inconvenience as in Case 2, where the tumour had been noticed for ten years, and were it not for the menorrhagia and metrorrhagia we might perhaps never see them. Many patients, again, will not submit to the treatment by electrolysis, as the process occupies too much of their time, and the ultimate result of this method of treatment does not appear to them to compensate in a sufficient way the time they will have to devote to it; in some few again ergot seems to have no effect in checking hemorrhage, as was the case with Mrs. E. C., Case 5, or it may cause great disturbance of the digestive tract. Where these conditions exist I believe hy-

drastis, either as the tincture or the fluid extract, the two most reliable preparations, will be found of value, and it deserves a fuller and more extended trial than has hitherto been given it in this country.—*British Med. Journal, July* 21, 1888, *p.* 123.

98.—ON THOMAS'S OPERATION FOR REMOVAL OF BENIGN TUMOUR OF THE FEMALE BREAST.

By Alex. Jamieson, M.D., M.R.C.P., Consulting Surgeon to the Imperial Maritime Customs in China, Shanghai.

The recognized risk of adenomata of the female breast developing into recurrent fibro-cystomata has always prompted me to urge early extirpation of these tumours, and most surgeons follow, I imagine, the same practice. A seriously deformed breast is, however, in the estimation of the majority of young women, a disproportionate price to pay for the avoidance of a danger which at worst is only probable. Therefore, when in 1882 Dr. Galliard Thomas, of New York, brought forward an operation for the removal of benign mammary tumours without visible mutilation, I felt confident that the new method would be extensively tried. Whether this has been the case or not I cannot say. It is at least certain that few cases, if any, have been reported in European journals.

The ratio of benign tumours of the breast to malignant is everywhere small; and in semi-civilised countries it is smaller than in Europe and America, for the simple reason that in such countries a tumour in any locality and in either sex is invariably disregarded until by its size, by the pain it excites, or by its fœtor, it renders life intolerable to the patient or his neighbours. Accordingly, putting together four cases operated on by me since the publication of Dr. Thomas's paper, and one by Dr. Boone, my colleague at St. Luke's Hospital for Chinese, out of the five two were European women, one an American, one a half-caste living under foreign conditions, and only one was pure Chinese.

The operation is begun by an incision exactly following the fold between the skin of the thorax and that covering the breast in its lower semi-circumference The length and precise position of the incision depend on the size and situation of the growth, but at all events when the breast is allowed to fall, the line followed by the knife must be invisible, except perhaps at one or other extremity. On reaching the muscles the gland is dissected from the chest sufficiently to enable it to be turned upwards, exposing its posterior surface. This is incised along a radial line over the tumour, and the latter removed. The gland is then replaced, its cutaneous surface remaining completely uninjured. In all the five cases to which I have referred, healing was immediate under antiseptic dressing. —*British Med. Journal, June* 9, 1888, *p.* 1216.

99.—ON IRRITABLE BLADDER AND FREQUENT MICTURITION IN FEMALES.

By Alexander Duke, F.K.Q.C.P.I., Ex-Assistant Master Rotunda Hospital, Dublin.

This distressing complaint is commonly met with among female patients suffering from internal disease, and the diagnosis of the cause is sometimes by no means easy.

In cases where, after careful examination, we are able to exclude the urine itself as a source of irritation, and find that the uterine symptoms complained of would not be sufficient by reflex action to account for the continual annoyance, we are obliged to seek for some other cause, and I have remarked in a great number of these cases an unnatural appearance of the meatus urinarius, the opening being much smaller and rounder, reminding one somewhat of the pin-hole os seen in conjunction with conical cervix uteri.

This description of case I find is comparatively easily cured by forcible dilatation of the meatus or urethral canal, but I have noticed a rather curious phenomenon to occur during the process, that is, the escape of a considerable quantity of urine when the blades of dilator are freely opened (and this after the bladder had been but a few moments before fully emptied to all appearance by the catheter), the amount of urine escaping being fully equal in some cases to that previously removed.

It has always been a puzzle to me where this urine came from, as the diagnosis of cystocele is a comparatively easy one, and a sacculated condition of the bladder could not possibly exist in all the cases in which I have noticed this peculiarity. We all know that when there is a tendency to prolapse of the uterus, and the vaginal walls in a lax condition, cystocele is most likely to occur, the posterior wall of the bladder losing its necessary support, and so bulging backwards into vagina and forming a sac sufficient to hold a considerable quantity of urine, but it is in those cases where this factor has been carefully excluded by previous examination that I am at a loss to explain the cause of the peculiarity alluded to. Dilatation of the urethral canal I find the most useful treatment in all cases when the urine is normal, and spasm and irritability is complained of, but where there is a manifest want of tone in the bladder a mixture containing tr. ferri muriati, cantharides, and nux vomica has always me given satisfactory results. A blister over sacrum I seldom employ, but have found it useful in exceptional cases. The galvanic battery I use as a *dernier ressort*, and have had most satisfactory results in some apparently hopeless cases, one lady patient having worn a urinal for more than five years night and day previous to my seeing her.

I consider the subject an interesting one, and hope my few re-

marks may direct more attention to it, as I know of no other complaint so likely to cause distress to the patient and the wearing-out of her nerve force by the continual irritation and want of sleep.—*Medical Press and Circular, Sept.* 5, 1888, *p.* 232.

100.—HOW TO CLEAN SPONGES FOR ABDOMINAL SECTION.

By Dr. Garrigues.

The flat sponges which are so useful in laparotomies are so expensive that it would be quite an item if they had to be new every time. In order to clean used sponges I press them out in lukewarm water till the water remains clean; then I leave them for an hour in diluted potassæ (℥j to the quart of water) which draws out all the blood. In exceptional cases it may become necessary to change this solution. Then the sponges are again wrung out in plain water till it stays clean. After that I leave them for an hour in a solution of bichloride of mercury (1 to 2,000), dry them in front of a fire and keep them in a muslin bag. By being kept dry they do not become rotten so soon as when they are kept in some antiseptic fluid. Before using them the next time they are left a short time in a similar solution of bichloride, wrung out, and kept in carbolized water (2 or 2½ per cent.) or a weak solution of bichloride (1 to 5,000), during the operation.

New sponges give nearly as much trouble to prepare. Even when they are bought prepared they have to be immersed for an hour in acidulated water (hydrochloric acid ℥j to every quart of water) in order to dissolve the lime concretions they contain, and be wrung out many times in water before all sand is out of them. —*American Journal of Medical Science, May* 1888, *p.* 450.

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